

69°, 291° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180° Zn=7
L.H.A. less than 180° Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z			
0	5 19.3 +58.2 110.3	4 58.4 +58.5 110.4	4 37.4 +58.7 110.5	4 16.4 +58.8 110.6	3 55.3 +59.0 110.6	3 34.1 +59.2 110.7	3 12.8 +59.4 110.8	2 51.5 +59.5 110.8	0	6 17.5 +58.2 110.1	5 56.9 +58.4 110.2	5 36.1 +58.6 110.3	5 15.2 +58.9 110.4	4 54.3 +59.0 110.5	4 33.3 +59.2 110.5	4 12.2 +59.3 110.6	3 51.0 +59.5 110.7	1	7 15.7 +58.2 109.9	6 55.3 +58.4 110.0	6 34.7 +58.7 110.1	6 14.1 +58.8 110.2	5 53.3 +59.1 110.3	5 32.5 +59.2 110.4	5 11.5 +59.4 110.5	4 50.5 +59.5 110.6	2
1	8 13.9 +58.2 109.6	7 53.7 +58.4 109.7	7 33.4 +58.6 109.9	7 12.9 +58.9 110.0	6 52.4 +59.0 110.1	6 31.7 +59.2 110.2	6 10.9 +59.3 110.3	5 50.0 +59.5 110.4	3	9 12.1 +58.2 109.4	8 52.1 +58.4 109.5	8 32.0 +58.6 109.7	8 11.8 +58.8 109.8	7 51.4 +59.0 109.9	7 30.9 +59.2 110.1	7 10.2 +59.4 110.2	6 49.5 +59.5 110.3	4	10 10.3 +58.1 109.1	9 50.5 +58.4 109.3	9 30.6 +58.7 109.4	9 10.6 +58.8 109.6	8 50.4 +59.0 109.7	8 30.1 +59.1 109.8	8 0.96 +59.3 110.0	7 49.0 +59.4 110.2	5
2	11 08.4 +58.2 108.9	10 48.9 +58.4 109.0	10 29.3 +58.6 109.2	10 09.4 +58.8 109.4	9 49.4 +59.0 109.6	9 29.2 +59.2 109.7	9 0.89 +59.4 109.9	8 48.4 +59.5 110.0	6	12 06.6 +58.1 108.6	11 47.3 +58.4 108.8	11 27.9 +58.6 109.0	11 08.2 +58.8 109.2	10 48.4 +59.0 109.4	10 28.4 +59.2 109.6	10 08.3 +59.3 109.7	9 47.9 +59.5 109.9	7	13 04.7 +58.1 108.4	12 45.7 +58.3 108.6	12 26.5 +58.6 108.8	12 07.0 +58.8 109.0	11 47.4 +59.0 109.2	11 27.6 +59.2 109.4	11 07.6 +59.3 109.6	10 47.4 +59.5 109.8	8
3	14 02.8 +58.1 108.1	13 44.0 +58.4 108.3	13 25.1 +58.5 108.6	13 05.8 +58.8 108.8	12 46.4 +59.0 109.0	12 26.8 +59.1 109.2	12 06.9 +59.3 109.4	11 46.9 +59.4 109.6	9	15 00.9 +58.1 107.8	14 42.4 +58.3 108.1	14 23.6 +58.6 108.3	14 04.6 +58.8 108.6	13 45.4 +59.0 108.8	13 25.9 +59.2 109.0	13 06.2 +59.4 109.3	12 46.3 +59.5 109.5	10	15 59.0 +58.1 107.6	15 40.7 +58.3 107.9	15 22.2 +58.6 108.1	15 03.4 +58.8 108.4	14 44.5 +58.9 108.6	14 25.1 +59.1 108.9	14 05.6 +59.3 109.1	13 45.8 +59.5 109.3	11
4	16 57.1 +58.0 107.3	16 39.0 +58.3 107.6	16 20.8 +58.5 107.9	16 02.2 +58.7 108.2	15 43.3 +59.0 108.4	15 24.2 +59.2 108.7	15 04.9 +59.3 109.0	14 45.3 +59.4 109.2	12	17 55.1 +58.0 107.1	17 37.3 +58.3 107.4	17 19.3 +58.5 107.7	17 00.9 +58.8 108.0	16 42.3 +59.0 108.2	16 23.4 +59.1 108.5	16 04.2 +59.3 108.8	15 44.7 +59.5 109.1	13	18 53.1 +58.0 106.8	18 35.6 +58.3 107.1	18 17.8 +58.5 107.4	17 59.7 +58.7 107.7	17 41.3 +58.9 108.0	17 22.5 +59.1 108.3	17 03.5 +59.3 108.6	16 44.2 +59.4 108.9	14
5	19 51.1 +58.0 106.5	19 33.9 +58.2 106.9	19 16.3 +58.5 107.2	18 58.4 +58.7 107.5	18 40.2 +58.9 107.9	18 21.6 +59.1 108.2	18 02.8 +59.3 108.5	17 43.6 +59.4 108.8	15	20 49.1 +57.9 106.2	20 32.1 +58.2 106.6	20 14.8 +58.5 107.0	19 57.1 +58.7 107.3	19 39.1 +58.9 107.7	19 20.7 +59.2 108.0	19 02.1 +59.2 108.3	18 43.0 +59.5 108.6	16	21 47.0 +58.0 106.0	21 30.3 +58.2 106.3	21 13.3 +58.4 106.7	20 55.8 +58.7 107.1	20 38.0 +58.9 107.4	20 19.9 +59.0 107.8	20 01.3 +59.3 108.2	19 42.5 +59.4 108.5	17
6	22 45.0 +57.8 105.7	22 28.5 +58.2 106.1	22 11.7 +58.4 106.5	21 54.5 +58.7 106.9	21 36.9 +58.9 107.2	21 18.9 +59.1 107.6	21 00.6 +59.3 108.0	20 41.9 +59.4 108.4	19	23 42.8 +57.8 105.4	23 26.7 +58.1 105.8	23 10.1 +58.5 106.2	22 53.2 +58.6 106.6	22 35.8 +58.9 107.0	22 18.0 +59.1 107.4	21 59.9 +59.2 107.8	21 41.3 +59.4 108.2	19	24 40.7 +57.8 105.1	24 24.8 +58.2 105.5	24 08.6 +58.3 106.0	23 51.8 +58.6 106.4	23 34.7 +58.8 106.8	23 17.1 +59.0 107.2	22 59.1 +59.2 107.6	22 40.7 +59.4 108.0	20
7	25 38.5 +57.8 104.8	25 23.0 +58.0 105.3	25 06.9 +58.4 105.7	24 50.4 +58.6 106.2	24 33.5 +58.8 106.6	24 16.1 +59.1 107.0	23 58.3 +59.3 107.5	23 40.1 +59.4 107.9	18	26 36.3 +57.8 104.5	26 21.0 +58.1 105.0	26 05.3 +58.3 105.5	25 49.0 +58.6 105.9	25 32.3 +58.8 106.4	25 15.2 +59.0 106.9	24 57.6 +59.2 107.3	24 39.5 +59.4 107.7	22	27 34.1 +57.7 104.2	27 19.1 +58.0 104.7	27 03.6 +58.3 105.2	26 47.6 +58.6 105.7	26 31.1 +58.8 106.2	26 14.2 +59.0 106.7	25 56.8 +59.2 107.1	25 38.9 +59.3 107.6	23
8	28 31.8 +57.6 103.9	28 17.1 +58.0 104.4	28 01.9 +58.3 104.9	27 46.2 +58.5 105.4	27 29.9 +58.8 106.0	27 13.2 +59.0 106.4	27 00.9 +59.3 106.7	26 47.0 +57.8 103.6	25	29 29.4 +57.7 103.6	29 15.1 +57.9 104.1	29 00.2 +58.2 104.7	28 44.7 +58.5 105.2	28 28.7 +58.7 105.7	28 12.2 +58.9 106.2	27 55.1 +59.2 106.8	27 37.6 +59.3 107.3	25	30 27.1 +57.5 103.3	30 13.0 +57.9 103.8	29 58.4 +58.2 104.4	29 43.2 +58.5 104.9	29 27.4 +58.7 105.5	29 11.1 +59.0 106.0	28 54.3 +59.2 106.6	28 36.9 +59.4 107.1	26
9	32 22.1 +57.5 102.6	32 08.7 +57.8 103.2	31 54.7 +58.1 103.8	31 40.1 +58.4 104.4	31 24.9 +58.6 104.8	31 09.0 +58.9 105.6	30 52.6 +59.1 106.2	30 36.0 +57.7 103.6	29	33 19.6 +57.4 102.2	33 06.5 +57.8 102.9	32 52.8 +58.1 103.5	32 38.5 +58.4 104.1	32 23.5 +58.7 104.8	32 07.9 +58.9 105.4	31 51.7 +59.1 106.0	31 34.9 +59.3 106.6	29	34 17.0 +57.4 101.9	34 04.3 +57.7 102.6	33 50.9 +58.0 103.2	33 36.9 +58.3 103.9	33 22.2 +58.6 104.5	33 06.8 +58.9 105.1	32 50.8 +59.1 105.8	32 34.2 +59.3 106.4	30
10	35 14.4 +57.3 101.5	35 02.0 +57.6 102.2	34 48.9 +58.0 102.9	34 30.8 +58.5 103.6	34 20.3 +58.8 104.3	34 05.7 +58.5 104.9	33 49.9 +59.0 105.6	33 33.5 +59.5 106.2	31	36 11.6 +57.3 101.2	35 59.6 +57.6 101.9	35 46.9 +57.9 102.6	35 33.5 +58.2 103.3	35 19.3 +58.6 104.0	35 04.5 +58.7 104.7	34 48.9 +59.1 105.3	34 32.7 +59.3 106.0	32	37 08.9 +57.1 100.8	36 57.2 +57.6 101.5	36 44.8 +57.9 102.3	36 31.7 +58.2 103.0	36 17.9 +58.5 103.7	36 03.3 +58.7 104.4	35 48.0 +59.0 105.1	35 32.0 +59.2 105.8	33
11	38 06.0 +57.1 100.4	37 54.8 +57.4 101.2	37 42.7 +57.8 101.9	37 29.9 +58.2 102.7	37 16.4 +58.4 103.4	37 02.0 +58.8 104.2	37 29.9 +58.2 102.7	37 16.4 +58.4 103.4	34	39 03.1 +56.9 100.0	38 52.2 +57.4 100.8	38 40.5 +57.8 101.6	38 28.1 +58.1 102.4	38 14.8 +58.4 103.2	38 00.8 +58.7 103.9	37 46.0 +58.9 104.7	37 30.4 +59.2 105.4	35	40 00.0 +56.9 99.6	39 49.6 +57.3 100.4	39 38.3 +57.7 101.3	39 26.2 +58.0 102.1	39 13.2 +58.4 102.9	38 59.5 +58.6 103.7	38 44.9 +58.9 104.4	38 29.6 +59.1 105.2	36
12	41 53.7 +56.7 99.8	41 44.1 +57.2 99.6	41 33.6 +57.6 100.5	41 22.2 +57.9 101.4	41 09.9 +58.5 102.3	40 20.1 +57.9 101.0	40 16.4 +58.6 102.3	40 06.0 +57.7 103.2	39	42 50.4 +56.6 98.3	42 41.3 +57.0 99.2	42 31.2 +57.4 100.1	42 20.1 +57.9 101.0	42 08.2 +58.2 101.9	41 55.3 +58.6 102.8	41 41.6 +58.8 103.7	41 27.0 +59.0 104.5	39	43 47.0 +56.5 97.9	43 38.3 +57.0 98.8	43 28.6 +57.4 99.8	43 18.0 +57.8 100.7	43 06.4 +58.2 101.6	42 53.9 +58.5 102.5	42 40.4 +58.8 103.4	42 26.0 +59.1 104.3	40
13	44 43.5 +56.4 97.4	44 35.3 +56.8 98.4	44 26.0 +57.3 99.3	44 15.8 +57.7 100.3	44 04.6 +58.1 101.3	43 52.4 +58.4 102.2	43 39.2 +58.7 103.1	43 25.1 +59.0 104.1	41	45 39.9 +56.2 96.9	45 32.1 +56.8 97.9	45 13.5 +57.6 99.9	45 02.7 +58.0 100.9	44 50.8 +58.4 101.9	44 37.9 +58.7 102.9	44 24.1 +59.0 103.8	42 43.7 +59.4 105.2	40	46 36.1 +56.1 96.4	46 28.9 +56.6 97.5	46 20.5 +57.1 98.5	46 11.1 +57.6 99.5	46 00.7 +57.9 100.5	45 49.2 +58.3 101.6	45 36.6 +58.7 102.6	45 23.1 +58.9 103.6	43
14	47 32.2 +55.9 95.9	47 25.0 +55.6 96.5	47 17.6 +57.0 98.0	47 08.7 +57.4 99.1	46 58.6 +57.0 100.2	46 27.4 +57.9 101.2	46 11.2 +58.4 102.2	46 47.5 +58.3 103.2	45	48 28.1 +55.8 95.3	48 22.0 +56.3 96.5	48 14.6 +56.9 97.6	48 06.1 +57.4 98.7	47 56.5 +57.8 99.8	47 45.8 +58.2 100.9	47 33.9 +58.5 101.9	47 20.9 +58.9 103.0	45	49 23.1 +55.6 95.3	49 16.8 +56.3 96.0	49 08.5 +56.6 96.4	49 05.3 +57.3 97.0	48 45.8 +58.6 98.4	48 32.4 +58.5 101.6	48 19.8 +58.8 102.7	46 43.7 +59.4 105.2	44
15	50 53.3 +54.8 92.3	50 32.2 +55.5 93.6	50 15.7 +55.3 93.0	50 08.3 +56.6 94.6	50 00.8 +57.1 97.8	49 52.0 +57.6 99.0	49 42.1 +58.0 100.1	49 30.9 +58.5 101.3	47	51 54.7 +54.3 90.9	51 49.8 +55.8 93.8	51 34.5 +56.4 95.2	51 24.5 +56.3 97.3	51 05.9 +57.6 99.5	50 40.1 +58.0 100.9	50 29.4 +58.3 100.9	50 17.4 +58.7 101.8	49	52 50.0 +54.6 91.6	52 37.7 +55.3 92.0	52 21.2 +56.0 93.0	52 11.5 +57.3 94.7	51 33.7 +57.7 98.4	51 24.2 +58.2 100.8	51 11.9 +58.5 100.7	51 34.3 +58.5 102.2	50
16	53 55.7 +54.3 90.9	53 45.0 +55.0 92.3	53 29.5 +55.6 93.8	53 10.8 +56.3 95.0	53 25.2 +55.4 97.0	52 59.2 +57.4 99.5	52 41.8 +57.2 97.1	52 33.7 +57.7 98.4	50	55 54.0 +54.0 90.2	55 48.0 +54.9 91.6	55 34.5 +55.5 93.1	55 24.5 +56.3 94.6	55 14.3 +57.0 96.6	54 31.4 +57.0 98.6	54 22.4 +58.0 99.4	54 11.9 +58.5 100.7	52	56 55.4 +53.7 89.4	56 42.9 +54.5 90.9	56 31.1 +55.2 92.4	56 21.4 +56.7 93.9	55 37.8 +56.7 99.5</td				

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 69°, 291°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z			
0	5 19.3 -58.2	110.3	4 58.4 -58.4	110.4	4 37.4 -58.6	110.5	4 16.4 -58.9	110.6	3 55.3 -59.1	110.6	3 34.1 -59.2	110.7	3 12.8 -59.3	110.8	2 51.5 -59.5	110.8	1 52.0 -59.5	110.9	0 52.5 -59.4	111.1	0 06.9 +59.5	68.8	3				
1	4 21.1 -58.2	110.6	4 00.0 -58.5	110.7	3 38.8 -58.7	110.7	3 17.5 -58.8	110.8	2 56.2 -59.0	110.8	2 34.9 -59.2	110.9	2 13.5 -59.4	110.9	1 51.2 -59.1	111.0	1 14.1 -59.3	111.1	0 36.5 -59.3	111.2	0 14.8 -59.4	111.2	1 06.4 +59.5	68.7	4		
2	3 22.9 -58.2	110.8	3 01.5 -58.4	110.9	2 40.1 -58.6	110.9	2 18.7 -58.9	111.0	1 57.2 -59.1	111.0	1 35.7 -59.2	111.0	1 14.1 -59.3	111.1	0 58.1 -59.0	111.2	0 21.0 -58.9	111.4	0 00.9 +59.0	68.6	0 22.8 +59.2	68.6	0 44.6 +59.4	68.7	5		
3	2 24.7 -58.2	111.1	2 03.1 -58.5	111.1	1 41.5 -58.7	111.1	1 19.8 -58.8	111.2	0 42.8 -58.7	111.3	0 21.0 -58.9	111.4	0 00.9 +59.0	68.6	0 37.9 +58.9	68.4	0 15.9 +58.6	68.4	0 59.9 +59.1	68.5	1 22.0 +59.2	68.5	1 44.0 +59.3	68.5	2 05.9 +59.5	68.5	5
4	1 26.5 -58.3	111.3	1 04.6 -58.4	111.3	0 42.8 -58.7	111.3	0 21.0 -58.9	111.4	0 00.9 +59.0	68.6	0 37.9 +58.9	68.4	0 15.9 +58.6	68.4	0 59.9 +59.1	68.5	1 22.0 +59.2	68.5	2 43.3 +59.4	68.4	3 05.4 +59.5	68.4	6				
5	0 28.2 -58.2	111.6	0 06.2 -58.5	111.6	0 15.9 +58.6	68.2	0 37.9 +58.9	68.4	1 14.5 +58.7	68.2	1 36.8 +58.8	68.3	1 59.0 +59.0	68.3	2 21.2 +59.2	68.3	2 42.7 +59.3	68.2	3 42.7 +59.3	68.2	4 04.9 +59.5	68.3	7				
6	0 30.0 +58.2	68.2	0 52.3 +58.4	68.2	1 14.5 +58.7	68.2	1 36.8 +58.8	68.3	1 59.0 +59.0	68.3	2 21.2 +59.2	68.3	2 43.3 +59.4	68.4	3 05.4 +59.5	68.4	4 04.9 +59.5	68.3	5 04.4 +59.5	68.1	6 04.4 +59.5	68.1	8				
7	1 28.2 +58.2	68.0	1 50.7 +58.5	68.0	2 13.2 +58.6	68.0	2 35.6 +58.9	68.1	2 58.0 +59.1	68.1	3 20.4 +59.2	68.2	3 42.7 +59.3	68.2	4 42.0 +59.4	68.1	5 04.4 +59.5	68.1	6 03.9 +59.5	68.0	7 03.9 +59.5	68.0	9				
8	2 26.4 +58.2	67.7	2 49.2 +58.4	67.8	3 11.8 +58.7	67.8	3 34.5 +58.8	67.9	3 57.1 +59.0	67.9	4 19.6 +59.2	68.0	4 42.0 +59.4	68.1	5 04.4 +59.5	68.1	6 03.9 +59.5	68.0	7 03.9 +59.5	68.0	8 03.9 +59.5	68.0	9				
9	3 24.6 +58.3	67.5	3 47.6 +58.4	67.5	4 10.5 +58.7	67.6	4 33.3 +58.9	67.7	4 56.1 +59.0	67.7	5 18.8 +59.2	67.8	5 41.4 +59.3	67.9	6 03.9 +59.5	68.0	7 03.9 +59.5	68.0	8 03.9 +59.5	68.0	9 03.9 +59.5	68.0	10				
10	4 22.9 +58.2	67.2	4 46.0 +58.5	67.3	5 09.2 +58.6	67.4	5 32.2 +58.8	67.5	5 55.1 +59.0	67.6	6 18.0 +59.2	67.7	6 40.7 +59.4	67.8	7 03.4 +59.4	67.9	8 02.8 +59.5	67.8	9 02.8 +59.5	67.8	10 02.8 +59.5	67.8	11				
11	5 21.1 +58.2	67.0	5 44.5 +58.4	67.1	6 07.8 +58.6	67.2	6 31.0 +58.9	67.3	6 54.1 +59.1	67.4	7 17.2 +59.2	67.5	7 40.1 +59.3	67.6	8 02.8 +59.5	67.8	9 02.8 +59.5	67.8	10 02.8 +59.5	67.8	11 02.8 +59.5	67.8	12				
12	6 19.3 +58.2	66.7	6 42.9 +58.4	66.9	7 06.4 +58.7	67.0	7 29.9 +58.8	67.1	7 53.2 +59.0	67.2	8 16.4 +59.1	67.3	8 39.4 +59.3	67.5	9 02.3 +59.5	67.6	10 01.8 +59.5	67.5	11 01.8 +59.5	67.5	12 01.8 +59.5	67.5	13				
13	7 17.5 +58.2	66.5	7 41.3 +58.5	66.6	8 05.1 +58.6	66.7	8 28.7 +58.8	66.9	8 52.2 +59.0	67.0	9 15.5 +59.2	67.2	9 38.7 +59.4	67.3	10 01.8 +59.5	67.2	11 01.3 +59.4	67.3	12 01.3 +59.4	67.3	13 01.3 +59.4	67.3	14				
14	8 15.7 +58.1	66.3	8 39.8 +58.4	66.4	9 03.7 +58.6	66.5	9 27.5 +58.9	66.7	9 51.2 +59.0	66.8	10 14.7 +59.2	67.0	10 38.1 +59.3	67.2	11 01.3 +59.4	67.3	12 01.3 +59.4	67.3	13 01.3 +59.4	67.3	14 01.3 +59.4	67.3	15				
15	9 13.8 +58.2	66.0	9 38.2 +58.4	66.2	10 02.3 +58.7	66.3	10 26.4 +58.8	66.5	10 50.2 +59.0	66.7	11 13.9 +59.2	66.8	11 37.4 +59.3	67.0	12 00.7 +59.5	67.2	13 00.7 +59.5	67.2	14 00.7 +59.5	67.2	15 00.7 +59.5	67.2	16				
16	10 12.0 +58.2	65.8	10 36.6 +58.3	65.9	11 01.0 +58.6	66.1	11 25.2 +58.8	66.3	11 49.2 +59.0	66.5	12 13.1 +59.1	66.7	12 36.7 +59.4	66.9	13 00.2 +59.5	67.1	14 00.2 +59.5	67.1	15 00.2 +59.5	67.1	16 00.2 +59.5	67.1	17				
17	11 10.2 +58.1	65.5	11 34.9 +58.4	65.7	11 59.6 +58.6	65.9	12 24.0 +58.8	66.1	12 48.2 +59.0	66.3	13 12.2 +59.2	66.5	13 36.1 +59.3	66.7	14 00.7 +59.5	67.1	15 00.7 +59.5	67.1	16 00.7 +59.5	67.1	17 00.7 +59.5	67.1	18				
18	12 08.3 +58.1	65.3	12 33.3 +58.4	65.5	12 58.2 +58.5	65.7	13 22.8 +58.8	65.9	13 47.2 +59.0	66.1	14 11.4 +59.2	66.3	14 35.4 +59.3	66.6	15 04.4 +59.5	66.8	16 04.4 +59.5	66.8	17 04.4 +59.5	66.8	18 04.4 +59.5	66.8	19				
19	13 06.4 +58.2	65.0	13 31.7 +58.3	65.2	13 56.7 +58.6	65.4	14 21.6 +58.7	65.7	14 46.2 +58.9	65.9	15 10.6 +59.1	66.2	15 34.7 +59.3	66.4	16 05.8 +59.4	66.6	17 05.8 +59.4	66.6	18 05.8 +59.4	66.6	19 05.8 +59.4	66.6	20				
20	14 04.6 +58.1	64.7	14 30.0 +58.4	65.0	14 55.3 +58.6	65.2	15 20.3 +58.8	65.5	15 45.1 +59.0	65.7	16 09.7 +59.1	66.0	16 34.0 +59.3	66.2	17 05.0 +59.5	66.5	18 02.8 +59.5	66.7	19 02.8 +59.5	66.7	20 02.8 +59.5	66.7	21				
21	15 02.7 +58.0	64.5	15 28.4 +58.3	64.7	15 53.9 +58.5	65.0	16 19.1 +58.8	65.3	16 44.1 +58.9	65.5	17 08.8 +59.2	65.8	17 33.3 +59.3	66.1	18 07.5 +59.4	66.4	19 07.5 +59.4	66.4	20 07.5 +59.4	66.4	21 07.5 +59.4	66.4	22				
22	16 00.7 +58.1	64.2	16 26.7 +58.3	64.5	16 52.4 +58.5	64.8	17 17.9 +58.7	65.0	17 43.0 +59.0	65.3	18 08.0 +59.1	65.6	18 32.6 +59.3	65.9	19 05.9 +59.4	66.2	20 05.9 +59.4	66.2	21 05.9 +59.4	66.2	22 05.9 +59.4	66.2	23				
23	16 58.8 +58.0	64.0	17 25.0 +58.3	64.2	17 50.9 +58.6	64.5	18 16.6 +58.7	64.8	18 42.0 +58.9	65.1	19 07.1 +59.1	65.4	19 31.9 +59.2	65.8	20 05.3 +59.5	66.1	21 05.3 +59.5	66.1	22 05.3 +59.5	66.1	23 05.3 +59.5	66.1	24				
24	17 56.8 +58.1	63.7	18 23.3 +58.3	64.0	18 49.5 +58.8	64.3	19 15.3 +58.7	64.6	19 40.9 +58.9	64.9	20 06.2 +59.1	65.3	20 31.1 +59.3	65.6	21 05.8 +59.4	65.8	22 05.8 +59.4	65.8	23 05.8 +59.4	65.8	24 05.8 +59.4	65.8	25				
25	18 54.9 +58.0	63.4	19 21.6 +58.2	63.7	19 48.0 +58.4	64.1	20 14.0 +58.7	64.4	20 39.8 +58.9	64.7	21 05.3 +59.0	65.1	21 30.4 +59.2	65.4	22 04.5 +59.5	65.8	23 04.5 +59.5	65.8	24 04.5 +59.5	65.8	25 04.5 +59.5	65.8	26				
26	19 52.9 +57.9	63.2	20 19.8 +58.2	63.5	20 46.4 +58.5	63.8	21 12.7 +58.7	64.2	21 38.7 +58.9	64.5	22 04.3 +59.1	64.9	22 29.6 +59.3	65.3	23 54.6 +59.4	65.6	24 54.6 +59.4	65.6	25 54.6 +59.4	65.6	26 54.6 +59.4	65.6	27				
27	20 50.8 +58.0	62.9	21 18.0 +58.2	63.2	21 44.9 +58.4	63.6	22 11.4 +58.7	63.9	22 37.6 +58.9	64.3	23 03.4 +59.1	64.7	23 28.9 +59.2	65.7	24 48.9 +59.4	66.0	25 48.9 +59.4	66.0	26 48.9 +59.4	66.0	27 48.9 +59.4	66.0	28				
28	21 48.8 +57.9	62.6	22 16.2 +58.2	62.9	22 43.3 +58.4	63.3	23 10.1 +58.6	63.7	23 36.5 +58.8	64.1	24 02.5 +59.0	64.5	24 28.1 +59.2	64.9	25 48.8 +59.3	65.3	26 48.8 +59.3	65.3	27 48.8 +59.3	65.3	28 48.8 +59.3	65.3	29				
29	22 46.7 +57.9	62.3	23 14.4 +58.1	62.7	23 41.4 +58.5	63.1	24 08.0 +58.5	63.5	24 31.9 +58.8	64.2	25 06.0 +59.0	64.6	25 29.2 +59.1	64.8	26 48.7 +59.3	65.2	27 48.7 +59.3	65.2	28 48.7 +59.3	65.2	29 48.7 +59.3	65.2	30				
30	23 44.6 +57.8	62.0	24 12.5 +58.2	62.4	24 40.1 +58.4	62.8	25 07.3 +58.6	63.2	25 34.1 +58.8	63.7	26 00.5 +59.0	64.1	26 26.5 +59.2	64.6	27 52.1 +59.4	65.0	28 52.1 +59.4	65.0	29 52.1 +59.4	65.0	30 52.1 +59.4	65.0	31				
31	24 42.4 +57.9	61.7	25 10.7 +58.0	62.2	25 38.5 +58.3	62.6	26 05.9 +58.6	63.0	26 32.9 +58.8	63.5	26 59.5 +59.0	63.9	27 25.7 +59.2	64.4	27 51.5 +59.3	64.8	28 51.5 +59.3	64.8	29 51.5 +59.3	64.8	30 51.5 +59.3	64.8	31				
32	25 40.3 +57.7	61.5	26 08.7 +58.1</td																								

70°, 290° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
Dec.	Hc	d	Z	Dec.																					
0	5 04.7	+58.2	109.4	4 44.8	+58.4	109.5	4 24.8	+58.6	109.5	4 04.7	+58.8	109.6	3 44.5	+59.0	109.7	3 24.3	+59.2	109.7	3 04.0	+59.4	109.8	2 43.7	+59.5	109.8	0
1	6 02.9	+58.2	109.1	5 43.2	+58.4	109.2	5 23.4	+58.6	109.3	5 03.5	+58.8	109.4	4 43.5	+59.1	109.5	4 23.5	+59.2	109.6	4 03.4	+59.3	109.6	3 43.2	+59.5	109.7	1
2	7 01.1	+58.1	108.9	6 41.6	+58.4	109.0	6 22.0	+58.6	109.1	6 02.3	+58.9	109.2	5 42.6	+59.0	109.3	5 22.7	+59.2	109.4	5 02.7	+59.4	109.5	4 42.7	+59.4	109.6	2
3	7 59.2	+58.2	108.6	7 40.0	+58.4	108.8	7 20.6	+58.7	108.9	7 01.2	+58.8	109.0	6 41.6	+59.0	109.1	6 21.9	+59.1	109.2	6 02.1	+59.3	109.3	5 42.1	+59.5	109.4	3
4	8 57.4	+58.1	108.4	8 38.4	+58.4	108.5	8 19.3	+58.6	108.7	8 00.0	+58.8	108.8	7 40.6	+59.0	108.9	7 21.0	+59.2	109.1	7 01.4	+59.3	109.2	6 41.6	+59.5	109.3	4
5	9 55.5	+58.2	108.1	9 36.8	+58.4	108.3	9 17.9	+58.6	108.5	8 58.8	+58.8	108.6	8 39.6	+59.0	108.8	8 20.2	+59.2	108.9	8 00.7	+59.4	109.0	7 41.1	+59.5	109.2	5
6	10 53.7	+58.1	107.9	10 35.2	+58.3	108.1	10 16.5	+58.6	108.2	9 57.6	+58.8	108.4	9 38.6	+59.0	108.6	9 19.4	+59.2	108.7	9 00.1	+59.3	108.9	8 40.6	+59.4	109.0	6
7	11 51.8	+58.1	107.6	11 33.5	+58.4	107.8	11 15.1	+58.6	108.0	10 56.4	+58.8	108.2	10 37.6	+59.0	108.4	10 18.6	+59.1	108.6	9 59.4	+59.3	108.7	9 40.0	+59.5	108.9	7
8	12 49.9	+58.1	107.4	12 31.9	+58.3	107.6	12 13.7	+58.5	107.8	11 55.2	+58.8	108.0	11 36.6	+59.0	108.2	11 17.7	+59.2	108.4	10 58.7	+59.3	108.6	10 39.5	+59.5	108.8	8
9	13 48.0	+58.1	107.1	13 30.2	+58.4	107.3	13 12.2	+58.6	107.6	12 54.0	+58.8	107.8	12 35.6	+58.9	108.0	12 16.9	+59.2	108.2	11 58.0	+59.4	108.4	11 39.0	+59.4	108.6	9
10	14 46.1	+58.1	106.9	14 28.6	+58.3	107.1	14 10.8	+58.5	107.4	13 52.8	+58.7	107.6	13 34.5	+59.0	107.8	13 16.1	+59.1	108.0	12 57.4	+59.3	108.3	12 38.4	+59.5	108.5	10
11	15 44.1	+58.1	106.6	15 26.9	+58.3	106.9	15 09.3	+58.6	107.1	14 51.5	+58.8	107.4	14 33.5	+59.0	107.6	14 15.2	+59.1	107.9	13 56.7	+59.3	108.1	13 37.9	+59.4	108.3	11
12	16 42.2	+58.0	106.3	16 25.2	+58.3	106.6	16 07.9	+58.5	106.9	15 50.3	+58.7	107.2	15 32.5	+58.9	107.4	15 14.3	+59.2	107.7	14 56.0	+59.3	108.0	14 37.3	+59.5	108.2	12
13	17 40.2	+58.0	106.1	17 23.5	+58.2	106.4	17 06.4	+58.5	106.7	16 49.0	+58.8	107.0	16 31.4	+58.9	107.2	16 13.5	+59.1	107.5	15 55.3	+59.3	107.8	15 36.8	+59.4	108.1	13
14	18 38.2	+58.0	105.8	18 21.7	+58.3	106.1	18 04.9	+58.5	106.4	17 47.8	+58.7	106.7	17 30.3	+59.0	107.0	17 12.6	+59.1	107.3	16 54.6	+59.2	107.6	16 36.2	+59.5	107.9	14
15	19 36.2	+57.9	105.5	19 20.0	+58.2	105.9	19 03.4	+58.5	106.2	18 46.5	+58.7	106.5	18 29.3	+58.9	106.9	18 11.7	+59.1	107.2	17 53.8	+59.3	107.5	17 35.7	+59.4	107.8	15
16	20 34.1	+58.0	105.2	20 18.2	+58.2	105.6	20 01.9	+58.4	106.0	19 45.2	+58.7	106.3	19 28.2	+58.9	106.6	19 10.8	+59.1	107.0	18 53.1	+59.3	107.3	18 35.1	+59.4	107.6	16
17	21 32.1	+57.9	105.0	21 16.4	+58.2	105.3	21 00.3	+58.4	105.7	20 43.9	+58.6	106.1	20 27.1	+58.9	106.4	20 09.9	+59.1	106.8	19 52.4	+59.2	107.1	19 34.5	+59.4	107.5	17
18	22 30.0	+57.8	104.7	22 14.6	+58.1	105.1	21 58.7	+58.5	105.5	21 42.5	+58.7	105.9	21 26.0	+58.8	106.2	21 09.0	+59.1	106.6	20 51.6	+59.3	107.0	20 33.9	+59.4	107.3	18
19	23 27.8	+57.8	104.4	23 12.7	+58.1	104.8	22 57.2	+58.3	105.2	22 41.2	+58.6	105.6	22 24.8	+58.9	106.0	22 08.1	+59.0	106.4	21 50.9	+59.2	106.8	21 33.3	+59.4	107.2	19
20	24 25.7	+57.8	104.1	24 10.8	+58.1	104.5	23 55.5	+58.4	105.0	23 39.8	+58.6	105.4	23 23.7	+58.8	105.8	23 07.1	+59.0	106.2	22 50.1	+59.3	106.6	22 32.7	+59.4	107.0	20
21	25 23.5	+57.7	103.8	25 08.9	+58.1	104.3	24 53.9	+58.3	104.7	24 38.4	+58.6	105.2	24 22.5	+58.8	105.6	24 06.1	+59.1	106.0	23 49.4	+59.2	106.5	23 32.1	+59.4	106.9	21
22	26 21.2	+57.8	103.5	26 07.0	+58.0	104.0	25 52.2	+58.3	104.5	25 37.0	+58.6	104.9	25 21.3	+58.8	105.4	25 05.2	+59.0	105.8	24 48.6	+59.2	106.3	24 31.5	+59.4	106.7	22
23	27 19.0	+57.7	103.2	27 05.0	+58.0	103.7	26 50.5	+58.3	104.2	26 35.6	+58.5	104.7	26 20.1	+58.8	105.2	26 04.2	+59.0	105.6	25 47.8	+59.2	106.1	25 30.9	+59.4	106.6	23
24	28 16.7	+57.6	102.9	28 03.0	+58.0	103.4	27 48.8	+58.3	103.9	27 34.1	+58.5	104.4	27 18.9	+58.8	104.9	27 03.2	+59.0	105.4	26 47.0	+59.1	105.9	26 30.3	+59.3	106.4	24
25	29 14.3	+57.6	102.6	29 01.0	+57.9	103.1	28 47.1	+58.2	103.7	28 32.6	+58.5	104.2	28 17.7	+58.7	104.7	28 02.2	+58.9	105.2	27 46.1	+59.2	105.7	27 29.6	+59.3	106.2	25
26	30 11.9	+57.6	102.3	29 58.9	+57.9	102.8	29 45.3	+58.2	103.4	29 31.1	+58.5	103.9	29 16.4	+58.7	104.5	29 01.1	+58.9	105.0	28 45.3	+59.1	105.6	28 28.9	+59.4	106.1	26
27	31 09.5	+57.5	101.9	30 56.8	+57.8	102.5	30 43.5	+58.1	103.1	30 29.6	+58.4	103.7	30 15.1	+58.7	104.2	30 00.0	+59.0	104.8	29 44.4	+59.2	105.4	29 28.3	+59.3	105.9	27
28	32 07.0	+57.4	101.6	31 54.6	+57.8	102.2	31 41.6	+58.1	102.8	31 28.0	+58.4	103.4	31 13.8	+58.6	104.0	30 59.0	+58.9	104.6	30 43.6	+59.1	105.2	30 27.6	+59.3	105.7	28
29	33 04.4	+57.4	101.2	32 52.4	+57.7	101.9	32 39.7	+58.0	102.5	32 26.4	+58.3	103.1	32 12.4	+58.6	103.8	31 57.9	+58.4	104.4	31 42.7	+59.1	105.0	31 26.9	+59.3	105.6	29
30	34 01.8	+57.3	100.9	33 50.1	+57.7	101.6	33 37.7	+58.1	102.2	33 24.7	+58.3	102.9	33 11.0	+58.6	103.5	32 56.7	+58.9	104.1	32 41.8	+59.0	104.8	32 26.2	+59.2	105.4	30
31	34 59.1	+57.3	100.5	34 47.8	+57.6	101.2	34 35.8	+57.9	101.9	34 23.0	+58.3	102.6	34 09.6	+58.6	103.2	33 55.6	+58.8	103.9	33 40.8	+59.1	104.5	33 25.4	+59.3	105.2	31
32	35 56.4	+57.2	100.2	35 45.4	+57.6	100.9	35 33.7	+57.9	101.6	35 21.3	+58.2	102.3	35 08.2	+58.5	103.0	34 54.4	+58.8	103.7	34 39.9	+59.0	104.3	34 24.7	+59.2	105.0	32
33	36 53.6	+57.1	99.8	36 43.0	+57.5	100.5	36 31.6	+57.9	101.3	36 19.5	+58.2	102.0	36 06.7	+58.5	102.7	35 53.2	+58.7	103.4	35 38.9	+59.0	104.1	35 23.9	+59.2	104.8	33
34	37 50.7	+57.0	99.4	37 47.5	+57.4	99.8	37 34.7	+57.3	99.7	37 21.4	+57.8	99.6	37 08.2	+58.2	99.9	37 47.4	+58.5	100.9	37 12.8	+58.8	102.0	37 48.7	+59.1	104.6	34
35	38 47.7	+57.0	99.0	38 37.9	+57.4	99.8	38 27.3	+57.7	100.6	38 15.9	+58.1	101.4	38 03.6	+58.4	102.1	37 50.6	+58.7	102.9	37 36.9	+58.9	103.7	37 22.3	+59.2	104.4	35
36	39 44.7	+56.9	98.6	39 35.3	+57.3	99.4	39 25.0	+57.7	100.2	39 14.0	+58.0	101.0	39 02.0	+58.4	101.8	38 49.3	+58.7	102.6	38 35.8	+58.9	103.4				

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 70°, 290°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z			
0	5 04.7 -58.2	109.4	4 44.8 -58.4	109.5	4 24.8 -58.7	109.5	4 04.7 -58.9	109.6	3 44.5 -59.0	109.7	3 24.3 -59.2	109.7	3 04.0 -59.3	109.8	2 43.7 -59.5	109.8	1 44.2 -59.5	110.0	0 44.7 -59.5	110.1	2 13.7 +59.5	69.5	5 14.2 +59.5	69.7	0		
1	4 06.5 -58.2	109.6	3 46.4 -58.5	109.7	3 26.1 -58.6	109.7	3 05.8 -58.8	109.8	2 45.5 -59.0	109.8	2 25.1 -59.2	109.9	2 04.7 -59.4	109.9	1 42.7 +59.5	69.3	3 13.2 +59.5	69.4	2 12.7 +59.5	69.3	4 12.7 +59.5	69.3	7 48.8 +59.3	68.6	8 10.6 +59.5	68.7	1
2	3 08.3 -58.2	109.9	2 47.9 -58.4	109.9	2 27.5 -58.7	110.0	2 07.0 -58.9	110.0	1 46.5 -59.1	110.0	1 25.9 -59.2	110.0	1 05.3 -59.3	110.1	0 26.7 -59.2	110.2	0 06.0 -59.4	110.2	0 44.8 +59.4	69.8	1 14.2 +59.5	69.7	4 14.2 +59.5	69.7	4		
3	2 10.1 -58.2	110.1	1 49.5 -58.4	110.1	1 28.8 -58.6	110.2	1 08.1 -58.8	110.2	0 47.4 -59.0	110.2	0 26.7 -59.2	110.2	0 06.0 -59.4	110.2	0 11.6 +59.0	69.6	0 32.5 +59.2	69.6	0 53.4 +59.3	69.6	2 13.7 +59.5	69.5	5 12.2 +59.4	69.0	9		
4	1 11.9 -58.2	110.3	0 51.1 -58.5	110.4	0 30.2 -58.7	110.4	0 09.3 -58.8	110.4	0 11.6 +59.0	69.6	0 32.5 +59.2	69.6	0 53.4 +59.3	69.6	1 14.2 +59.5	69.7	1 14.2 +59.5	69.7	4 14.2 +59.5	69.7	4						
5	0 13.7 -58.2	110.6	0 07.4 +58.4	69.4	0 28.5 +58.6	69.4	0 49.5 +58.9	69.4	1 10.6 +59.1	69.4	1 31.7 +59.2	69.5	1 52.7 +59.4	69.5	2 13.7 +59.5	69.5	5 12.2 +59.4	69.0	9 11.0 +59.4	68.6	10 09.0 +59.5	68.3	14				
6	0 44.5 +58.2	69.2	1 05.8 +58.4	69.2	1 27.1 +58.6	69.2	1 48.4 +58.8	69.2	2 09.7 +59.0	69.3	2 30.9 +59.2	69.3	2 52.1 +59.3	69.3	3 13.2 +59.5	69.4	6 10.6 +59.5	68.6	8 10.6 +59.5	68.7	11 07.9 +59.5	68.1	16				
7	1 42.7 +58.1	68.9	2 04.2 +58.4	69.0	2 25.7 +58.7	69.0	2 47.2 +58.9	69.0	3 08.7 +59.0	69.1	3 30.1 +59.2	69.1	3 51.4 +59.4	69.2	4 12.7 +59.5	69.3	7 48.8 +59.3	68.6	8 10.6 +59.5	68.7	11 07.9 +59.5	68.3	17				
8	2 40.8 +58.2	68.7	3 02.6 +58.5	68.7	3 24.4 +58.6	68.8	3 46.1 +58.8	68.8	4 07.7 +59.0	68.9	4 29.3 +59.2	69.0	4 50.8 +59.3	69.0	5 12.2 +59.4	69.1	9 10.1 +59.4	68.6	10 09.5 +59.5	68.5	13 09.0 +59.5	68.3	14				
9	3 39.0 +58.2	68.4	4 01.1 +58.4	68.5	4 23.0 +58.7	68.6	4 44.9 +58.8	68.6	5 06.7 +59.0	68.7	5 28.5 +59.1	68.8	5 50.1 +59.3	68.9	6 11.6 +59.5	69.0	11 09.0 +59.5	68.3	12 07.9 +59.5	68.1	16 06.3 +59.4	67.6	19				
10	4 37.2 +58.2	68.2	4 59.5 +58.4	68.3	5 21.7 +58.6	68.4	5 43.7 +58.9	68.4	6 05.7 +59.1	68.5	6 27.6 +59.2	68.6	6 49.4 +59.4	68.8	7 11.1 +59.5	68.9	10 08.5 +59.4	68.2	15 05.7 +59.5	67.5	20 05.2 +59.4	67.4	20				
11	5 35.4 +58.2	67.9	5 57.9 +58.4	68.0	6 20.3 +58.6	68.1	6 42.6 +58.8	68.2	7 04.8 +59.0	68.4	7 26.8 +59.2	68.5	7 48.8 +59.3	68.6	8 10.6 +59.5	68.7	11 07.9 +59.5	68.1	16 04.6 +59.4	67.2	22 04.0 +59.4	67.1	22				
12	6 33.6 +58.2	67.7	6 56.3 +58.4	67.8	7 18.9 +58.6	67.9	7 41.4 +58.8	68.0	8 03.8 +59.0	68.2	8 26.0 +59.2	68.3	8 48.1 +59.3	68.5	9 10.1 +59.4	68.6	10 09.5 +59.5	68.5	13 09.0 +59.5	68.3	14 08.6 +59.5	68.2	18				
13	7 31.8 +58.1	67.5	7 54.7 +58.4	67.6	8 17.5 +58.6	67.7	8 40.2 +58.8	67.8	9 02.8 +59.0	68.0	9 25.2 +59.2	68.1	9 47.4 +59.4	68.3	10 04.0 +59.4	68.2	11 09.0 +59.5	68.1	12 07.9 +59.5	68.0	16 06.3 +59.4	67.6	19				
14	8 29.9 +58.2	67.2	8 53.1 +58.4	67.3	9 16.1 +58.6	67.5	9 39.0 +58.8	67.6	10 01.8 +59.0	67.8	10 24.4 +59.1	68.0	10 46.8 +59.3	68.1	11 09.0 +59.5	68.0	12 07.9 +59.5	67.9	16 06.3 +59.4	67.6	19						
15	9 28.1 +58.1	67.0	9 51.5 +58.4	67.1	10 14.7 +58.6	67.3	10 37.8 +58.8	67.4	11 00.8 +59.0	67.6	11 23.5 +59.2	67.8	11 46.1 +59.3	68.0	12 08.5 +59.4	68.2	13 05.7 +59.5	67.5	18 05.2 +59.4	67.4	20 05.2 +59.4	67.4	20				
16	10 26.2 +58.1	66.7	10 49.9 +58.3	66.9	11 13.3 +58.6	67.1	11 36.6 +58.8	67.2	11 59.8 +58.9	67.4	12 22.7 +59.1	67.6	12 45.4 +59.3	67.8	13 07.9 +59.5	68.1	14 04.6 +59.4	67.2	17 04.6 +59.4	67.2	20 04.0 +59.4	67.1	23				
17	11 24.3 +58.2	66.5	11 48.2 +58.4	66.6	12 11.9 +58.6	66.8	12 35.4 +58.8	67.0	12 58.7 +59.0	67.2	13 21.8 +59.2	67.5	13 44.7 +59.3	67.7	14 07.4 +59.4	67.9	15 04.6 +59.4	67.2	17 04.6 +59.4	67.2	20 04.0 +59.4	67.1	23				
18	12 22.5 +58.1	66.2	12 46.6 +58.3	66.4	13 10.5 +58.6	66.6	13 34.2 +58.8	66.8	13 57.7 +59.0	67.1	14 21.0 +59.1	67.3	14 44.0 +59.3	67.5	15 06.8 +59.5	67.8	16 03.0 +59.5	67.6	18 02.2 +59.4	67.4	21 03.4 +59.4	66.9	24				
19	13 20.6 +58.1	65.9	13 44.9 +58.3	66.2	14 09.1 +58.5	66.4	14 33.0 +58.7	66.6	14 56.7 +58.9	66.9	15 20.1 +59.1	67.1	15 43.3 +59.3	67.4	16 06.3 +59.4	67.6	17 03.0 +59.4	67.2	19 02.2 +59.4	67.1	21 03.4 +59.4	66.9	24				
20	14 18.7 +58.0	65.7	14 43.2 +58.4	65.9	15 07.6 +58.5	66.2	15 31.7 +58.8	66.4	15 55.6 +59.0	66.7	16 19.2 +59.2	66.9	16 42.6 +59.3	67.2	17 05.7 +59.5	67.5	18 02.2 +59.4	67.2	20 02.2 +59.4	67.1	21 03.4 +59.4	66.9	24				
21	15 16.7 +58.1	65.4	15 41.6 +58.3	65.7	16 06.1 +58.6	65.9	16 30.5 +58.7	66.2	16 54.6 +58.9	66.5	17 18.4 +59.1	66.8	17 41.9 +59.3	67.1	18 05.2 +59.4	67.4	19 02.2 +59.4	67.1	21 03.4 +59.4	66.9	24 01.6 +59.4	66.6	25				
22	16 14.8 +58.0	65.2	16 39.9 +58.2	65.4	17 04.7 +58.5	65.7	17 29.2 +58.7	66.0	17 53.5 +58.9	66.3	18 17.5 +59.1	66.6	18 41.2 +59.2	66.9	19 04.6 +59.4	67.2	20 02.2 +59.4	67.1	22 02.2 +59.4	67.0	23 02.2 +59.4	67.0	22				
23	17 12.8 +58.0	64.9	17 38.1 +58.3	65.2	18 03.2 +58.5	65.5	18 27.9 +58.7	65.8	18 52.4 +58.9	66.1	19 16.6 +59.1	66.4	19 40.4 +59.3	66.7	20 04.0 +59.4	67.1	21 03.4 +59.4	66.9	23 02.2 +59.4	66.7	24 01.6 +59.4	66.6	24				
24	18 10.8 +58.0	64.6	18 36.4 +58.2	64.9	19 01.7 +58.4	65.2	19 26.6 +58.7	65.6	19 51.3 +58.9	65.9	20 15.7 +59.1	66.2	20 39.7 +59.3	66.6	21 03.4 +59.4	66.9	22 02.2 +59.4	66.7	23 02.2 +59.4	66.6	24 01.6 +59.4	66.6	24				
25	19 08.8 +58.0	64.4	19 34.6 +58.2	64.7	20 00.1 +58.5	65.0	20 25.3 +58.7	65.3	20 50.2 +58.9	65.7	21 14.8 +59.0	66.0	21 39.0 +59.2	66.4	22 02.8 +59.4	66.8	23 02.8 +59.4	66.6	24 01.6 +59.4	66.6	25 01.0 +59.3	66.3	25				
26	20 06.8 +57.9	64.1	20 32.8 +58.2	64.4	20 58.6 +58.4	64.8	21 24.0 +58.7	65.1	21 49.1 +58.8	65.5	22 13.8 +59.1	65.8	22 38.2 +59.2	66.2	23 02.2 +59.4	66.6	24 01.6 +59.4	66.6	25 01.0 +59.3	66.3	26 00.3 +59.4	66.1	29				
27	21 04.7 +57.9	63.8	21 31.0 +58.2	64.2	21 57.0 +58.4	64.5	22 22.7 +58.6	64.9	22 47.9 +58.9	65.3	23 12.5 +59.0	65.7	23 38.4 +59.3	66.0	24 01.6 +59.4	66.4	25 01.0 +59.3	66.3	26 00.3 +59.4	66.2	27 00.3 +59.4	66.1	29				
28	22 02.6 +57.9	63.5	22 29.2 +58.1	63.9	22 55.4 +58.4	64.3	23 21.3 +58.6	64.7	23 46.8 +58.8	65.0	24 11.9 +59.0	65.5	24 36.6 +59.2	65.9	25 01.0 +59.3	65.7	26 00.3 +59.4	65.5	27 00.3 +59.4	65.3	28 01.0 +59.3	65.3	28				
29	23 47.1 +57.6	61.4	29 15.5 +58.0	61.9	29 43.6 +58.1	62.4	30 11.1 +58.4	62.9	30 38.2 +58.6	63.5	31 04.7 +58.9	64.0	31 30.8 +59.1	64.5	31 56.3 +59.3	65.1	32 07.9 +59.0	64.3	32 29.9 +59.0	64.3	33 55.6 +59.2	64.9	36				
30	28 47.1 +57.6	61.4	29 13.5 +57.8	61.6	30 41.7 +58.2	62.1	31 09.5 +58.4	62.7	31 36.8 +58.7	63.2	32 03.6 +58.9	63.8	32 29.9 +59.0	64.3	33 54.8 +59.3	65.3	34 54.8 +59.3	65.3	35 54.8 +59.3	65.3	36 54.8 +59.3	65.3	30				
31	30 42.3 +57.5	60.8	31 11.3 +57.8	61.3	31 39.9 +58.1	61.9	32 07.9 +58.4	62.4	32 35.5 +58.6	63.0	33 02.5 +58.8	63.7	33 28.9 +59.1	64.1	33 54.8 +59.3	64.7	34 54.8 +59.3	64.5	35 54.8 +59.3	64.5	36 54.8 +59.3	64.5	37				
32	31 39.8 +57.5	60.5	32 09.1 +																								

71°, 289° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	75°			76°			77°			78°			79°			80°			81°			82°			Dec.									
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.									
0	4 50.0 +58.2	108.4	4 31.0 +58.4	108.5	4 12.0 +58.6	108.5	3 52.9 +58.8	108.6	3 33.7 +59.0	108.7	3 14.5 +59.1	108.7	2 55.2 +59.3	108.8	2 35.8 +59.5	108.8	0	4 0.7 +58.2	108.4	4 31.0 +58.4	108.5	4 12.0 +58.6	108.5	3 52.9 +58.8	108.6	3 33.7 +59.0	108.7							
1	5 48.2 +58.1	108.2	5 29.4 +58.4	108.2	5 10.6 +58.6	108.3	4 51.7 +58.8	108.4	4 32.7 +59.0	108.5	4 13.6 +59.2	108.6	3 54.5 +59.3	108.6	3 35.3 +59.5	108.7	1	5 46.3 +58.2	107.9	5 27.8 +58.4	108.0	5 9.2 +58.6	108.1	4 50.5 +58.8	108.2	4 31.7 +59.0	108.3	4 13.6 +59.2	108.4	2				
2	7 44.5 +58.1	107.7	7 26.2 +58.4	107.8	7 0.78 +58.6	107.9	6 49.3 +58.8	108.0	6 30.7 +59.0	108.1	6 12.0 +59.2	108.2	5 53.2 +59.3	108.3	5 34.2 +59.5	108.4	3	8 42.6 +58.1	107.4	8 24.6 +58.4	107.5	8 0.64 +58.6	107.7	7 48.1 +58.8	107.8	7 29.7 +59.0	107.9	7 11.2 +59.1	108.1	4				
3	9 40.7 +58.2	107.2	9 23.0 +58.3	107.3	9 0.50 +58.6	107.5	8 46.9 +58.8	107.6	8 28.7 +59.0	107.8	8 10.3 +59.2	107.9	7 51.8 +59.4	108.0	7 33.2 +59.5	108.2	5	10 38.9 +58.1	106.9	10 21.3 +58.4	107.1	10 0.36 +58.6	107.2	9 45.7 +58.8	107.4	9 27.7 +59.0	107.6	9 0.95 +59.2	107.7	6				
4	11 37.0 +58.1	106.6	11 19.7 +58.3	106.8	11 0.22 +58.6	107.0	10 44.5 +58.8	107.2	10 26.7 +59.0	107.4	10 0.87 +59.1	107.6	9 50.5 +59.3	107.7	9 32.1 +59.5	107.9	7	8 12.35 +58.0	106.4	8 18.0 +58.3	106.6	8 0.08 +58.5	106.7	7 11.33 +58.1	106.1	7 12.48 +58.4	106.2	7 0.70 +59.1	107.0	8				
5	13 33.1 +58.1	106.1	13 16.3 +58.4	106.4	12 59.3 +58.6	106.6	12 42.1 +58.8	106.8	12 24.6 +59.0	107.0	12 0.70 +59.1	107.2	11 49.1 +59.3	107.4	11 31.0 +59.5	107.6	9	14 31.2 +58.0	105.9	14 14.7 +58.3	106.1	13 57.9 +58.5	106.4	13 40.9 +58.7	106.6	13 23.6 +59.0	106.8	13 0.61 +59.2	107.1	10				
6	15 29.2 +58.1	105.6	15 13.0 +58.2	105.9	14 56.4 +58.5	106.1	14 39.6 +58.8	106.4	14 22.6 +58.9	106.6	14 0.53 +59.1	106.9	13 47.7 +59.3	107.1	13 29.9 +59.5	107.3	11	16 27.3 +58.0	105.3	16 11.2 +58.3	105.6	15 54.9 +58.5	105.9	15 38.4 +58.7	106.2	15 21.5 +58.9	106.4	15 0.44 +59.1	106.7	12				
7	17 25.3 +57.9	105.1	17 0.95 +58.2	105.4	16 53.4 +58.5	105.7	16 37.1 +58.7	106.0	16 20.4 +59.0	106.2	16 0.35 +59.1	106.5	15 46.3 +59.3	106.8	15 28.8 +59.5	107.1	13	18 23.2 +58.0	104.8	18 0.77 +58.3	105.1	17 51.9 +58.5	105.4	17 35.8 +58.7	105.7	17 19.4 +58.9	106.0	17 0.26 +59.1	106.3	14				
8	19 21.2 +57.9	104.5	19 0.60 +58.2	104.9	18 50.4 +58.5	105.2	18 34.5 +58.7	105.5	18 18.3 +58.9	105.9	18 0.17 +59.1	106.2	17 44.9 +59.2	106.5	17 27.7 +59.4	106.8	15	20 19.1 +57.9	104.3	20 0.42 +58.2	104.6	19 48.9 +58.4	105.0	19 33.2 +58.7	105.3	19 17.2 +59.8	105.6	19 0.08 +59.0	106.0	16				
9	21 17.0 +57.9	104.0	21 0.24 +58.1	104.4	20 47.3 +58.4	104.7	20 31.9 +58.6	105.1	20 16.1 +58.8	105.4	19 59.9 +59.1	105.8	19 43.4 +59.2	106.1	19 26.5 +59.4	106.5	17	22 0.05 +58.1	103.7	22 0.55 +58.1	104.1	21 45.7 +58.4	104.5	21 30.5 +58.7	104.9	21 14.9 +58.9	105.2	20 59.0 +59.0	105.6	18				
10	23 12.8 +57.8	103.4	22 58.6 +58.2	103.8	22 44.1 +58.4	104.2	22 29.2 +58.6	104.6	22 13.8 +58.8	105.0	21 58.0 +59.1	105.4	21 14.9 +59.3	107.2	21 30.7 +59.1	107.4	21 11.9 +59.3	107.6	19	24 0.6 +57.8	103.1	23 56.8 +58.0	103.5	23 42.5 +58.3	104.0	23 27.8 +58.6	104.4	23 12.6 +58.9	104.8	22 57.1 +59.0	105.2	20		
11	25 08.4 +57.7	102.8	24 54.8 +58.1	103.3	24 40.8 +58.3	103.7	24 26.4 +58.5	104.2	24 11.5 +58.8	104.6	23 56.1 +59.0	105.0	23 40.3 +59.2	105.5	23 24.1 +59.4	105.9	21	26 0.61 +57.7	102.5	25 52.9 +58.0	103.0	25 39.1 +58.3	103.5	25 24.9 +58.6	103.9	25 10.3 +58.7	104.4	24 55.1 +59.0	104.8	24				
12	27 03.8 +57.7	102.2	26 50.9 +58.0	102.7	26 37.4 +58.3	103.2	26 23.5 +58.5	103.7	26 0.90 +58.8	104.2	25 54.1 +59.0	104.6	25 38.7 +59.2	105.1	25 22.9 +59.3	105.6	23	28 01.5 +57.6	101.9	27 48.9 +57.9	102.4	27 35.7 +58.2	102.9	27 22.0 +58.5	103.4	27 0.78 +58.8	103.9	26 37.9 +59.2	104.9	22				
13	29 59.1 +57.6	101.6	28 46.8 +57.9	102.1	28 33.9 +58.2	102.7	28 20.5 +58.5	103.2	28 0.66 +58.7	103.7	27 52.1 +58.9	104.2	27 37.1 +59.1	104.7	27 21.6 +59.3	105.2	25	30 54.2 +57.5	100.9	30 42.6 +57.8	101.5	30 30.3 +58.1	102.1	29 49.7 +58.4	102.7	29 0.40 +58.6	103.2	28 35.4 +59.1	104.3	27				
14	31 51.7 +57.4	100.6	31 40.4 +57.7	101.2	31 28.4 +58.1	101.8	31 15.8 +58.4	102.4	31 0.26 +58.7	103.0	30 48.9 +58.8	103.6	30 34.5 +59.1	104.2	30 19.5 +59.3	104.7	28	32 49.1 +57.4	100.3	32 38.1 +57.8	100.9	32 26.5 +58.0	101.5	32 14.2 +58.3	102.1	32 01.3 +58.6	102.7	31 47.7 +58.8	103.3	31 33.6 +59.1	103.9	31 18.8 +59.3	104.5	29
15	33 46.5 +57.3	99.9	33 35.9 +57.6	100.6	33 24.5 +58.0	101.2	33 12.5 +58.3	101.9	32 59.9 +58.6	102.5	32 46.6 +58.8	103.1	32 32.7 +59.0	103.7	32 18.1 +59.2	104.4	30	34 43.8 +57.3	99.5	34 33.5 +57.6	100.2	34 22.5 +58.0	100.9	34 10.8 +58.3	101.6	33 58.5 +58.2	102.3	34 45.4 +58.7	102.9	33 31.7 +59.3	104.2	31		
16	35 41.1 +57.1	99.2	35 31.1 +57.6	99.9	35 20.5 +57.9	100.6	35 09.1 +58.2	101.3	34 50.7 +58.0	102.0	34 44.2 +58.5	102.6	34 30.8 +59.0	103.3	34 16.6 +59.2	104.0	32	36 38.2 +57.2	98.8	36 28.7 +57.5	99.5	36 16.4 +57.9	100.3	35 55.5 +58.5	101.7	35 43.0 +58.7	102.4	35 29.8 +59.0	103.1	34 15.8 +59.2	103.8	33		
17	37 35.4 +57.0	98.4	37 26.2 +57.4	99.2	37 16.2 +57.8	99.9	37 05.5 +58.1	100.7	36 54.0 +58.4	101.4	36 41.7 +58.8	102.1	36 28.8 +58.9	102.9	36 15.0 +59.2	103.6	34	38 32.4 +56.9	98.0	38 23.6 +57.4	98.8	38 14.0 +57.7	99.6	37 52.4 +58.4	101.1	37 40.5 +58.6	101.9	37 27.7 +59.0	102.6	35 14.2 +59.2	103.4	35		
18	39 29.3 +56.9	97.6	39 21.0 +57.2	98.4	39 11.7 +57.7	99.2	39 01.7 +58.0	100.0	38 50.8 +58.4	100.8	38 39.1 +58.7	101.6	38 26.7 +58.9	102.4	38 13.4 +59.1	103.2	36	40 26.2 +56.8	97.2	40 18.2 +57.2	98.0	40 09.4 +57.6	98.9	39 59.7 +58.0	100.3	39 37.8 +58.6	101.3	39 25.6 +58.8	102.2	37				
19	41 23.0 +56.6	96.8	41 15.4 +57.1	97.6	41 0.70 +57.5	98.5	40 57.7 +57.9	99.4	40 45.7 +58.2	100.2	40 36.4 +58.5	101.1	40 24.4 +58.9	101.9	40 11.6 +59.1	102.7	38	41 19.6 +56.6	96.3	42 12.5 +57.1	97.2	42 0.45 +57.5	98.1	41 45.7 +58.2	100.3	41 34.9 +58.6	101.0	41 10.7 +59.1	102.5	39				
20	43 16.2 +56.4	95.9	43 09.6 +56.9	96.8	43 0.20 +57.3	97.7	42 53.4 +57.8	98.7	42 43.9 +58.1	99.6	42 33.5 +58.4	100.5	42 22.1 +58.7	101.4	42 09.8 +59.0	102.3	40	44 12.6 +56.4	95.4	44 0.65 +57.3	96.4	43 59.3 +57.3	97.3	43 42.0 +58.1	98.3	43 20.8 +58.8	100.1	43 08.8 +59.0	102.0	41				
21	45 09.0 +56.2	94.9	45 03.3 +56.7	95.9	44 56.6 +57.2	96.9	44 48.9 +57.6	97.9	44 40.1 +58.0	98.9	44 30.3 +58.4	99.9	44 19.6 +58.6	100.8	44 07.8 +59.0	101.8	42	46 50.9 +55.2	93.0	46 15.4 +56.5	94.4	46 44.0 +57.5	95.5	46 31.9 +58.1	96.4	46 10.7 +59.1	100.2	45 06.8 +58.9	101.5	43				
22	47 57.2 +55.8	92.8	48 49.4 +56.2	94.0	48 44.7 +56.7	95.1	48 38.8 +57.2	96.2	48 31.7 +57.7	97.4	48 23.4 +58.1	98.5	48 14.0 +58.5	99.6	48 03.4 +58.8	100.7	46	49 48.6 +55.2	91.9	49 14.6 +56.3	93.8	49 33.7 +57.5	95.0	49 25.2 +58.2	96.7	49 12.5 +58.4	98.7	47						
23	50 44.0 +55.2	91.6	50 41.6 +55.9	92.9	50 38.0 +56.5	94.1	50 33.1 +57.0	95.3	50 26.9 +57.5	96.5	50 19.5 +58.0	97.7	50 10.9 +58.3	98.9	50 0.01 +58.7	100.1	48	51 39.2 +55.1	91.0	51 37.5 +55.7	92.3	51 30.1 +56.9	94.8	51 24.4 +57.4	96.0	51 17.5 +57.8	97.3	51 09.2 +58.3	98.5	50 59.7 +58.6	99.7	49		
24	52 34.3 +54.8	90.4	52 33.2 +55.5	91.7	52 3																													

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 71°, 289°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.																																																																																																																																																																																																																																																																																																																									
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z																																																																																																																																																																																																																																																																																																																										
0	4 50.0 -58.1 108.4	4 31.0 -58.4 108.5	4 12.0 -58.6 108.5	3 52.9 -58.8 108.6	3 33.7 -59.0 108.7	3 14.5 -59.2 108.7	2 55.2 -59.4 108.8	2 35.8 -59.5 108.8	2 12.6 +59.5 70.8	0 02.9 +59.3 70.8	0 22.6 +59.5 70.8	0 22.6 +59.5 70.8	0	4 51.9 -58.2 108.6	3 32.6 -58.4 108.7	2 53.7 -58.2 108.9	1 55.5 -58.2 109.1	0 57.3 -58.1 109.4	0 37.4 -58.4 109.4	0 19.4 -58.4 109.4	0 0.0 +17.8 0.0	0 0.0 +17.8 0.0	0 0.0 +17.8 0.0	0 0.0 +17.8 0.0	0 0.0 +17.8 0.0	0 0.0 +17.8 0.0	0 0.0 +17.8 0.0	0																																																																																																																																																																																																																																																																																																																						
1	5 51.9 -58.2 108.6	3 32.6 -58.4 108.7	3 13.4 -58.6 108.8	2 54.1 -58.9 108.8	2 34.7 -59.0 108.9	2 15.3 -59.2 108.9	1 55.8 -59.3 108.9	1 36.3 -59.4 109.0	1 22.1 +59.5 70.6	0 0.2 +59.3 70.6	0 22.2 +59.3 70.6	1 22.1 +59.5 70.6	4	5 53.7 -58.2 108.9	2 34.2 -58.4 108.9	2 14.8 -58.7 109.0	1 56.4 -58.8 109.2	0 16.1 -58.6 109.2	0 17.5 -58.6 109.4	0 0.2 +58.9 70.6	0 0.0 +17.5 0.0	0 0.0 +17.5 0.0	0 0.0 +17.5 0.0	0 0.0 +17.5 0.0	0 0.0 +17.5 0.0	0 0.0 +17.5 0.0	0 0.0 +17.5 0.0	1																																																																																																																																																																																																																																																																																																																						
2	5 55.5 -58.2 109.1	1 35.8 -58.4 109.2	1 16.1 -58.6 109.2	0 56.4 -58.8 109.2	0 36.7 -59.1 109.2	0 16.9 -59.2 109.2	0 22.4 +59.0 70.6	0 42.3 +59.2 70.6	0 21.6 +59.4 70.5	2 0.5 +59.3 70.5	2 35.8 -59.5 108.8	1 36.3 -59.4 109.0	2	5 57.3 -58.1 109.4	0 37.4 -58.4 109.4	0 17.5 -58.6 109.4	0 0.2 +58.9 70.6	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	2																																																																																																																																																																																																																																																																																																																							
3	5 57.3 -58.1 109.4	0 37.4 -58.4 109.4	0 17.5 -58.6 109.4	0 0.2 +58.9 70.6	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	0 0.0 +17.4 0.0	3																																																																																																																																																																																																																																																																																																																										
4	6 00.8 +58.2 70.4	0 21.0 +58.4 70.4	0 41.1 +58.7 70.4	1 01.3 +58.8 70.4	1 21.4 +59.0 70.4	1 41.5 +59.2 70.4	2 01.5 +59.4 70.5	2 21.6 +59.4 70.5	2 40.5 +59.4 70.5	2 20.4 +59.0 70.2	2 40.7 +59.1 70.3	3 00.9 +59.3 70.3	3 21.0 +59.5 70.4	3 46.0 +58.2 68.7	7 09.8 +58.4 68.8	7 31.5 +58.6 68.9	8 10.1 +58.5 68.7	8 30.1 +58.5 68.8	8 14.4 +59.0 69.1	8 35.7 +59.2 69.3	8 56.9 +59.3 69.4	9 17.9 +59.4 69.6	9 38.6 +58.1 68.2	9 14.6 +58.4 68.2	9 24.4 +58.7 68.3	9 53.5 +58.2 69.4	4 14.6 +58.4 69.5	5 17.4 +58.6 69.5	5 38.2 +59.2 69.8	5 58.9 +59.3 69.9	6 19.5 +59.4 70.0	6 22.6 +59.5 70.8	7 18.9 +59.5 69.9	10																																																																																																																																																																																																																																																																																																																
5	6 09.0 +58.2 70.1	1 19.4 +58.4 70.2	1 39.8 +58.6 70.2	2 00.1 +58.8 70.2	2 20.4 +59.0 70.2	2 40.7 +59.1 70.3	3 00.9 +59.3 70.3	3 21.0 +59.5 70.4	3 40.5 +59.5 70.4	3 15.2 +58.2 69.9	3 38.4 +58.6 70.0	3 58.9 +58.8 70.0	4 18.4 +59.0 69.8	4 39.0 +59.2 70.0	4 59.5 +59.4 70.0	5 20.0 +59.5 70.1	5 40.2 +59.3 70.2	5 59.8 +59.3 70.2	6 19.5 +59.4 70.3	6 22.6 +59.5 70.6	7 18.4 +59.5 69.7	8 18.4 +59.5 69.7	9 17.9 +59.4 69.6	10 17.3 +59.5 69.4	11 16.8 +59.5 69.3	12 16.3 +59.4 69.2	13 15.7 +59.5 69.0	14 15.2 +59.4 68.9	15 14.6 +59.4 68.8	16 14.0 +59.5 68.6	17 13.5 +59.4 68.5	18 12.9 +59.4 68.3	19 12.3 +59.4 68.2	20 11.7 +59.4 68.0	21 11.1 +59.4 67.9	22 10.5 +59.4 67.7	23 10.9 +59.4 67.6	24 10.3 +59.3 67.4	25 10.5 +59.4 67.3	26 10.7 +59.4 67.2	27 10.9 +59.4 67.1	28 10.3 +59.3 67.0	29 10.0 +59.3 66.9	30 9.6 +59.3 66.8	31 9.2 +59.3 66.7	32 8.8 +59.3 66.6	33 8.4 +59.3 66.5	34 8.0 +59.3 66.4	35 7.6 +59.3 66.3	36 7.2 +59.3 66.2	37 6.8 +59.3 66.1	38 6.4 +59.3 66.0	39 6.0 +59.3 65.9	40 5.6 +59.3 65.8	41 5.2 +59.3 65.7	42 4.8 +59.3 65.6	43 4.4 +59.3 65.5	44 4.0 +59.3 65.4	45 3.6 +59.3 65.3	46 3.2 +59.3 65.2	47 2.8 +59.3 65.1	48 2.4 +59.3 65.0	49 2.0 +59.3 64.9	50 1.6 +59.3 64.8	51 1.2 +59.3 64.7	52 0.8 +59.3 64.6	53 0.4 +59.3 64.5	54 0.0 +59.3 64.4	55 0.0 +59.3 64.3	56 0.0 +59.3 64.2	57 0.0 +59.3 64.1	58 0.0 +59.3 64.0	59 0.0 +59.3 63.9	60 0.0 +59.3 63.8	61 0.0 +59.3 63.7	62 0.0 +59.3 63.6	63 0.0 +59.3 63.5	64 0.0 +59.3 63.4	65 0.0 +59.3 63.3	66 0.0 +59.3 63.2	67 0.0 +59.3 63.1	68 0.0 +59.3 63.0	69 0.0 +59.3 62.9	70 0.0 +59.3 62.8	71 0.0 +59.3 62.7	72 0.0 +59.3 62.6	73 0.0 +59.3 62.5	74 0.0 +59.3 62.4	75 0.0 +59.3 62.3	76 0.0 +59.3 62.2	77 0.0 +59.3 62.1	78 0.0 +59.3 62.0	79 0.0 +59.3 61.9	80 0.0 +59.3 61.8	81 0.0 +59.3 61.7	82 0.0 +59.3 61.6	83 0.0 +59.3 61.5	84 0.0 +59.3 61.4	85 0.0 +59.3 61.3	86 0.0 +59.3 61.2	87 0.0 +59.3 61.1	88 0.0 +59.3 61.0	89 0.0 +59.3 60.9	90 0.0 +59.3 60.8	91 0.0 +59.3 60.7	92 0.0 +59.3 60.6	93 0.0 +59.3 60.5	94 0.0 +59.3 60.4	95 0.0 +59.3 60.3	96 0.0 +59.3 60.2	97 0.0 +59.3 60.1	98 0.0 +59.3 60.0	99 0.0 +59.3 59.9	0 0.0 +59.3 59.8	0 0.0 +59.3 59.7	0 0.0 +59.3 59.6	0 0.0 +59.3 59.5	0 0.0 +59.3 59.4	0 0.0 +59.3 59.3	0 0.0 +59.3 59.2	0 0.0 +59.3 59.1	0 0.0 +59.3 59.0	0 0.0 +59.3 58.9	0 0.0 +59.3 58.8	0 0.0 +59.3 58.7	0 0.0 +59.3 58.6	0 0.0 +59.3 58.5	0 0.0 +59.3 58.4	0 0.0 +59.3 58.3	0 0.0 +59.3 58.2	0 0.0 +59.3 58.1	0 0.0 +59.3 58.0	0 0.0 +59.3 57.9	0 0.0 +59.3 57.8	0 0.0 +59.3 57.7	0 0.0 +59.3 57.6	0 0.0 +59.3 57.5	0 0.0 +59.3 57.4	0 0.0 +59.3 57.3	0 0.0 +59.3 57.2	0 0.0 +59.3 57.1	0 0.0 +59.3 57.0	0 0.0 +59.3 56.9	0 0.0 +59.3 56.8	0 0.0 +59.3 56.7	0 0.0 +59.3 56.6	0 0.0 +59.3 56.5	0 0.0 +59.3 56.4	0 0.0 +59.3 56.3	0 0.0 +59.3 56.2	0 0.0 +59.3 56.1	0 0.0 +59.3 56.0	0 0.0 +59.3 55.9	0 0.0 +59.3 55.8	0 0.0 +59.3 55.7	0 0.0 +59.3 55.6	0 0.0 +59.3 55.5	0 0.0 +59.3 55.4	0 0.0 +59.3 55.3	0 0.0 +59.3 55.2	0 0.0 +59.3 55.1	0 0.0 +59.3 55.0	0 0.0 +59.3 54.9	0 0.0 +59.3 54.8	0 0.0 +59.3 54.7	0 0.0 +59.3 54.6	0 0.0 +59.3 54.5	0 0.0 +59.3 54.4	0 0.0 +59.3 54.3	0 0.0 +59.3 54.2	0 0.0 +59.3 54.1	0 0.0 +59.3 54.0	0 0.0 +59.3 53.9	0 0.0 +59.3 53.8	0 0.0 +59.3 53.7	0 0.0 +59.3 53.6	0 0.0 +59.3 53.5	0 0.0 +59.3 53.4	0 0.0 +59.3 53.3	0 0.0 +59.3 53.2	0 0.0 +59.3 53.1	0 0.0 +59.3 53.0	0 0.0 +59.3 52.9	0 0.0 +59.3 52.8	0 0.0 +59.3 52.7	0 0.0 +59.3 52.6	0 0.0 +59.3 52.5	0 0.0 +59.3 52.4	0 0.0 +59.3 52.3	0 0.0 +59.3 52.2	0 0.0 +59.3 52.1	0 0.0 +59.3 52.0	0 0.0 +59.3 51.9	0 0.0 +59.3 51.8	0 0.0 +59.3 51.7	0 0.0 +59.3 51.6	0 0.0 +59.3 51.5	0 0.0 +59.3 51.4	0 0.0 +59.3 51.3	0 0.0 +59.3 51.2	0 0.0 +59.3 51.1	0 0.0 +59.3 51.0	0 0.0 +59.3 50.9	0 0.0 +59.3 50.8	0 0.0 +59.3 50.7	0 0.0 +59.3 50.6	0 0.0 +59.3 50.5	0 0.0 +59.3 50.4	0 0.0 +59.3 50.3	0 0.0 +59.3 50.2	0 0.0 +59.3 50.1	0 0.0 +59.3 50.0	0 0.0 +59.3 49.9	0 0.0 +59.3 49.8	0 0.0 +59.3 49.7	0 0.0 +59.3 49.6	0 0.0 +59.3 49.5	0 0.0 +59.3 49.4	0 0.0 +59.3 49.3	0 0.0 +59.3 49.2	0 0.0 +59.3 49.1	0 0.0 +59.3 49.0	0 0.0 +59.3 48.9	0 0.0 +59.3 48.8	0 0.0 +59.3 48.7	0 0.0 +59.3 48.6	0 0.0 +59.3 48.5	0 0.0 +59.3 48.4	0 0.0 +59.3 48.3	0 0.0 +59.3 48.2	0 0.0 +59.3 48.1	0 0.0 +59.3 48.0	0 0.0 +59.3 47.9	0 0.0 +59.3 47.8	0 0.0 +59.3 47.7	0 0.0 +59.3 47.6	0 0.0 +59.3 47.5	0 0.0 +59.3 47.4	0 0.0 +59.3 47.3	0 0.0 +59.3 47.2	0 0.0 +59.3 47.1	0 0.0 +59.3 47.0	0 0.0 +59.3 46.9	0 0.0 +59.3 46.8	0 0.0 +59.3 46.7	0 0.0 +59.3 46.6	0 0.0 +59.3 46.5	0 0.0 +59.3 46.4	0 0.0 +59.3 46.3	0 0.0 +59.3 46.2	0 0.0 +59.3 46.1	0 0.0 +59.3 46.0	0 0.0 +59.3 45.9	0 0.0 +59.3 45.8	0 0.0 +59.3 45.7	0 0.0 +59.3 45.6	0 0.0 +59.3 45.5	0 0.0 +59.3 45.4	0 0.0 +59.3 45.3	0 0.0 +59.3 45.2	0 0.0 +59.3 45.1	0 0.0 +59.3 45.0	0 0.0 +59.3 44.9	0 0.0 +59.3 44.8	0 0.0 +59.3 44.7	0 0.0 +59.3 44.6	0 0.0 +59.3 44.5	0 0.0 +59.3 44.4	0 0.0 +59.3 44.3	0 0.0 +59.3 44.2	0 0.0 +59.3 44.1	0 0.0 +59.3 44.0	0 0.0 +59.3 43.9	0 0.0 +59.3 43.8	0 0.0 +59.3 43.7	0 0.0 +59.3 43.6	0 0.0 +59.3 43.5	0 0.0 +59.3 43.4	0 0.0 +59.3 43.3	0 0.0 +59.3 43.2	0 0.0 +59.3 43.1	0 0.0 +59.3 43.0	0 0.0 +59.3 42.9	0 0.0 +59.3 42.8	0 0.0 +59.3 42.7	0 0.0 +59.3 42.6	0 0.0 +59.3 42.5	0 0.0 +59.3 42.4	0 0.0 +59.3 42.3	0 0.0 +59.3 42.2	0 0.0 +59.3 42.1	0 0.0 +59.3 42.0	0 0.0 +59.3 41.9	0 0.0 +59.3 41.8	0 0.0 +59.3 41.7	0 0.0 +59.3 41.6	0 0.0 +59.3 41.5	0 0.0 +59.3 41.4	0 0.0 +59.3 41.3	0 0.0 +59.3 41.2	0 0.0 +59.3 41.1	0 0.0 +59.3 41.0	0 0.0 +59.3 40.9	0 0.0 +59.3 40.8	0 0.0 +59.3 40.7	0 0.0 +59.3 40.6	0 0.0 +59.3 40.5	0 0.0 +59.3 40.4	0 0.0 +59.3 40.3	0 0.0 +59.3 40.2	0 0.0 +59.3 40.1	0 0.0 +59.3 40.0	0 0.0 +59.3 39.9	0 0.0 +59.3 39.8	0 0.0 +59.3 39.7	0 0.0 +59.3 39.6	0 0.0 +59.3 39.5	0 0.0 +59.3 39.4	0 0.0 +59.3 39.3	0 0.0 +59.3 39.2	0 0.0 +59.3 39.1	0 0.0 +59.3 39.0	0 0.0 +59.3 38.9	0 0.0 +59.3 38.8	0 0.0 +59.3 38.7	0 0.0 +59.3 38.6	0 0.0 +59.3 38.5	0 0.0 +59.3 38.4	0 0.0 +59.3 38.3	0 0.0 +59.3 38.2	0 0.0 +59.3 38.1	0 0.0 +59.3 38.0	0 0.0 +59.3 37.9	0 0.0 +59.3 37.8	0 0.0 +59.3 37.7	0 0.0 +59.3 37.6	0 0.0 +59.3 37.5	0

72°, 288° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	75°			76°			77°			78°			79°			80°			81°			82°			Dec.									
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.									
0	4 35.2 + 58.2	107.4	4 17.2 + 58.4	107.5	3 59.2 + 58.6	107.6	3 41.0 + 58.8	107.6	3 22.8 + 59.0	107.7	3 04.6 + 59.1	107.7	2 46.2 + 59.4	107.8	2 27.9 + 59.5	107.8	0	0	,	,	,	,	,	,	0									
1	5 33.4 + 58.1	107.2	5 15.6 + 58.4	107.3	4 57.8 + 58.6	107.4	4 39.8 + 58.8	107.4	4 21.8 + 59.0	107.5	4 03.7 + 59.2	107.6	3 45.6 + 59.3	107.6	3 27.4 + 59.4	107.7	1	5 31.5 + 58.1	106.9	6 14.0 + 58.4	107.0	5 56.4 + 58.6	107.1	5 38.6 + 58.8	107.2	5 02.9 + 59.0	107.3	4 44.9 + 59.3	107.5	4 26.8 + 59.5	107.6	2		
2	7 29.6 + 58.2	106.7	7 12.4 + 58.3	106.8	6 55.0 + 58.5	106.9	6 37.4 + 58.8	107.0	6 19.8 + 59.0	107.1	6 02.1 + 59.1	107.2	5 44.2 + 59.4	107.3	5 26.3 + 59.5	107.4	3	8 27.8 + 58.1	106.4	8 10.7 + 58.4	106.6	7 53.5 + 58.6	106.7	7 36.2 + 58.8	106.8	7 18.8 + 59.0	107.0	6 43.6 + 59.3	107.2	6 25.8 + 59.4	107.3	4		
5	9 25.9 + 58.1	106.2	9 09.1 + 58.3	106.3	8 52.1 + 58.6	106.5	8 35.0 + 58.8	106.6	8 17.8 + 59.0	106.8	8 00.4 + 59.2	106.9	7 42.9 + 59.3	107.0	7 25.2 + 59.5	107.2	5	6 10.4 + 58.0	105.9	10 07.4 + 58.3	106.1	9 50.7 + 58.6	106.3	9 33.8 + 58.8	106.4	8 56.9 + 59.1	106.7	8 42.2 + 59.3	106.9	8 24.7 + 59.5	107.0	6		
7	11 22.0 + 58.1	105.7	11 05.7 + 58.4	105.9	10 49.3 + 58.5	106.0	10 32.6 + 58.8	106.2	10 15.7 + 59.0	106.4	9 58.7 + 59.2	106.6	9 41.5 + 59.3	106.7	9 24.2 + 59.4	106.9	7	8 12.0 + 58.1	105.4	12 04.1 + 58.3	105.6	11 47.8 + 58.6	105.8	11 31.4 + 58.7	106.0	10 57.9 + 59.1	106.4	10 40.8 + 59.3	106.6	10 23.6 + 59.5	106.8	8		
9	13 18.2 + 58.0	105.1	13 02.4 + 58.3	105.4	12 46.4 + 58.5	105.6	12 30.1 + 58.8	105.8	12 13.7 + 58.9	106.0	11 57.0 + 59.1	106.2	11 40.1 + 59.3	106.4	11 23.1 + 59.4	106.6	9	10 08.2 + 57.9	103.8	17 53.7 + 58.2	104.1	17 38.9 + 58.4	104.4	17 23.8 + 58.7	104.8	17 08.3 + 58.9	105.1	16 52.6 + 59.1	105.3	16 20.3 + 59.4	105.9	14		
10	14 16.2 + 58.0	104.9	14 00.7 + 58.3	105.1	13 44.9 + 58.5	105.4	13 28.9 + 58.7	105.6	13 12.6 + 59.0	105.8	12 56.1 + 59.2	106.1	12 39.4 + 59.3	106.3	12 22.5 + 59.5	106.5	10	11 15.4 + 58.0	104.6	14 59.0 + 58.2	104.9	14 43.4 + 58.5	105.1	14 27.6 + 58.7	105.4	14 11.6 + 58.9	105.6	13 55.3 + 59.1	105.9	13 38.7 + 59.3	106.1	11		
12	16 12.2 + 58.0	104.4	15 57.2 + 58.3	104.6	15 41.9 + 58.5	104.9	15 26.3 + 58.8	105.2	15 10.5 + 58.9	105.4	14 54.4 + 59.1	105.7	14 38.0 + 59.3	106.0	14 21.4 + 59.4	106.2	12	17 10.2 + 58.0	104.1	16 40.4 + 58.5	104.7	16 25.1 + 58.7	105.0	16 09.4 + 58.9	105.2	15 53.5 + 59.1	105.5	15 37.3 + 59.3	105.8	15 20.8 + 59.5	106.1	13		
14	18 08.2 + 57.9	103.8	17 53.7 + 58.2	104.1	17 38.9 + 58.4	104.4	17 23.8 + 58.7	104.8	17 08.3 + 58.9	105.1	16 52.6 + 59.1	105.3	16 36.6 + 59.2	105.6	16 20.3 + 59.4	105.9	14	19 06.1 + 57.9	103.5	18 51.9 + 58.2	103.9	18 37.3 + 58.5	104.2	18 22.5 + 58.6	104.5	18 07.2 + 58.9	104.9	17 55.8 + 59.1	105.2	17 35.8 + 59.3	105.5	15		
16	20 04.0 + 57.9	103.3	19 50.1 + 58.2	103.6	19 35.8 + 58.4	104.0	19 21.1 + 58.7	104.3	19 06.1 + 58.9	104.7	18 50.8 + 59.1	105.0	18 35.1 + 59.3	105.3	18 19.1 + 59.4	105.6	16	21 01.9 + 57.9	103.0	20 48.3 + 58.1	103.4	20 34.2 + 58.4	103.7	20 19.8 + 58.6	104.1	20 05.0 + 58.9	104.4	19 49.9 + 59.0	104.8	19 34.4 + 59.2	105.1	19 18.5 + 59.4	105.5	17
18	21 59.8 + 57.8	102.7	21 46.4 + 58.1	103.1	21 32.6 + 58.4	103.5	21 18.4 + 58.7	103.9	21 03.9 + 58.8	104.2	20 48.9 + 59.1	104.6	20 33.6 + 59.2	105.0	20 17.9 + 59.4	105.3	18	22 57.6 + 57.8	102.4	22 44.5 + 58.1	102.8	22 31.0 + 58.4	103.2	22 17.1 + 58.6	103.6	22 0.2 + 57.8	104.0	21 48.0 + 59.0	104.4	21 32.8 + 59.3	104.8	21 17.3 + 59.4	105.2	19
20	23 55.4 + 57.8	102.1	23 42.6 + 58.1	102.6	23 29.4 + 58.3	103.0	23 15.7 + 58.5	103.4	23 01.5 + 58.9	103.8	22 47.0 + 59.0	104.2	22 32.1 + 59.2	104.6	22 16.7 + 59.4	105.0	20	24 53.2 + 57.7	101.8	24 40.7 + 58.0	102.3	24 27.7 + 58.3	102.7	24 14.2 + 58.6	103.2	24 00.4 + 58.7	103.6	23 46.0 + 59.0	104.0	23 31.3 + 59.2	104.5	23 16.1 + 59.3	104.9	21
22	25 50.9 + 57.7	101.5	25 38.7 + 58.0	102.0	25 26.0 + 58.3	102.5	25 12.8 + 58.5	102.9	24 59.1 + 58.8	103.4	24 45.0 + 59.0	103.8	24 30.5 + 59.1	104.3	24 15.4 + 59.4	104.7	22	26 48.6 + 57.7	101.2	26 36.7 + 58.0	101.7	26 24.3 + 58.2	102.2	26 11.3 + 58.6	102.7	25 57.9 + 58.8	103.2	25 44.0 + 59.0	103.6	25 29.6 + 59.2	104.1	25 14.8 + 59.4	104.6	23
24	27 46.3 + 57.6	100.9	27 34.7 + 57.9	101.4	27 22.5 + 58.2	101.9	27 09.9 + 58.4	102.4	26 56.7 + 58.7	102.9	26 43.0 + 59.0	103.4	26 28.8 + 59.2	103.9	26 14.2 + 59.3	104.4	24	28 43.9 + 57.5	100.6	28 32.6 + 57.9	101.1	28 20.7 + 58.2	101.7	28 08.3 + 58.5	102.2	27 55.4 + 58.7	102.7	27 42.0 + 58.9	103.2	27 28.0 + 59.1	103.7	27 13.5 + 59.3	104.2	25
26	29 41.4 + 57.6	100.3	29 30.5 + 57.8	100.8	29 18.9 + 58.2	101.4	29 06.8 + 58.4	101.9	28 54.1 + 58.7	102.5	28 40.9 + 58.8	103.0	28 27.1 + 59.1	103.5	28 12.8 + 59.3	104.1	26	30 39.0 + 57.4	99.9	30 28.3 + 57.8	100.5	30 17.1 + 58.1	101.1	30 05.2 + 58.4	101.7	29 52.8 + 58.7	102.2	29 39.8 + 58.9	102.8	29 26.2 + 59.2	103.3	29 12.1 + 59.3	103.9	27
28	31 36.4 + 57.4	99.6	31 26.1 + 57.8	100.2	31 15.2 + 58.0	100.8	31 03.6 + 58.4	101.4	30 51.5 + 58.6	102.0	30 38.7 + 58.9	102.6	30 25.4 + 59.0	103.1	30 11.4 + 59.3	103.7	28	32 33.8 + 57.4	99.3	32 23.9 + 57.7	99.9	32 13.2 + 58.2	100.1	31 50.1 + 58.6	101.7	31 37.6 + 58.8	102.3	31 24.4 + 59.1	102.9	31 10.7 + 59.3	103.5	29		
30	33 31.2 + 57.3	98.9	33 21.6 + 57.6	99.6	33 11.3 + 58.0	100.2	33 00.3 + 58.3	100.8	32 48.7 + 58.6	101.5	32 36.4 + 58.8	102.1	32 23.5 + 59.1	102.7	32 10.0 + 59.2	103.3	30	34 28.5 + 57.2	98.5	34 19.2 + 57.6	99.5	34 09.3 + 57.9	99.9	33 47.3 + 58.5	100.6	33 43.0 + 58.8	101.2	33 35.2 + 58.8	101.9	33 22.6 + 59.0	102.5	33 09.2 + 59.3	103.2	31
32	35 25.7 + 57.2	98.2	35 16.8 + 57.6	98.9	35 07.2 + 57.9	99.6	34 56.8 + 58.3	100.3	34 45.8 + 58.5	101.0	34 34.0 + 58.8	101.6	34 21.6 + 59.0	102.3	34 08.5 + 59.2	103.0	32	36 22.7 + 57.1	97.8	36 11.3 + 57.6	98.9	36 00.3 + 58.3	100.8	35 37.0 + 58.7	101.4	35 30.2 + 59.0	102.0	35 23.5 + 59.1	102.7	35 10.1 + 59.2	103.7	33		
34	37 17.8 + 57.0	97.4	38 09.2 + 57.4	97.8	38 00.7 + 57.7	98.6	37 51.3 + 58.1	99.4	37 41.2 + 58.4	100.1	37 30.2 + 58.7	100.9	37 18.5 + 59.0	101.6	37 06.1 + 59.1	102.4	35	38 17.0 + 56.9	97.0	38 0.2 + 57.4	97.8	38 30.6 + 57.2	97.4	38 49.4 + 58.0	99.0	38 39.6 + 58.3	99.8	38 28.9 + 58.6	100.6	38 17.5 + 58.9	101.4	38 05.2 + 59.2	102.2	36
36	39 13.9 + 56.9	96.6	39 06.6 + 57.2	97.4	38 58.4 + 57.6	98.2	38 49.4 + 58.0	99.0	38 39.6 + 58.3	99.8	38 28.9 + 58.6	100.6	38 17.5 + 58.9	101.4	38 05.2 + 59.2	102.2	36	40 10.8 + 56.7	96.2	40 03.8 + 57.2	97.0	40 56.0 + 57.6	97.9	40 37.4 + 57.9	98.7	40 34.7 + 58.3	99.5	40 23.5 + 59.0	100.3	40 10.4 + 59.1	101.9	37		
38	41 07.5 + 56.7	95.8	41 01.0 + 57.1	96.6	40 53.6 + 57.5	97.5	40 45.3 + 57.9	98.4	40 40.5 + 58.2	99.2	40 26.1 + 58.6	100.9	40 15.2 + 58.9	101.7	40 03.5 + 59.0	101.7	38	42 41.7 + 56.3	94.9	42 07.2 + 56.7	95.4	42 47.4 + 57.1	96.1	42 14.9 + 58.2	97.8	42 06.2 + 58.5	98.9	42 23.2 + 58.4	99.5	42 12.9 + 58.7	100.4	42 01.6 + 59.0	101.3	40
40	43 00.7 + 56.5	94.9	42 55.1 + 56.9	95.8	42 48.6 + 57.3	96.7	42 41.1 + 57.7	97.7	42 32.6 + 58.1	98.6	42 23.2 + 58.4	99.5	42 12.9 + 58.7	100.4	42 01.6 + 59.0	101.3	40	43 57.2 + 56.3	94.4	43 50.9 + 57.3	95.3	43 30.7 + 57.8	96.2	43 16.6 + 58.7	97.1	43 03.2 + 58.4	98.2	43 21.6 + 58.5	99.2	43 11.3				

LATITUDE CONTRARY NAME TO DECLINATION **L.H.A. 72°, 288°**

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.	
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
0	4 35.2 -58.1	107.4	4 17.2 -58.3	107.5	3 59.2 -58.6	107.6	3 41.0 -58.8	107.6	3 22.8 -59.0	107.7	3 04.6 -59.2	107.7	2 46.2 -59.3	107.8	2 27.9 -59.5	107.8	0	27.9 -59.5	107.8	0	27.9 -59.5	107.8	0	27.9 -59.5	107.8	0
1	3 37.1 -58.1	107.7	3 18.9 -58.4	107.7	3 00.6 -58.7	107.8	2 42.2 -58.8	107.8	2 23.8 -59.0	107.9	2 05.4 -59.2	107.9	1 46.9 -59.3	107.9	1 28.4 -59.5	108.0	1	28.4 -59.5	108.0	1	28.4 -59.5	108.0	1	28.4 -59.5	108.0	1
2	2 39.0 -58.2	107.9	2 20.5 -58.4	108.0	2 01.9 -58.6	108.0	1 43.4 -58.8	108.0	1 24.8 -59.0	108.1	1 06.2 -59.2	108.1	0 47.6 -59.3	108.1	0 28.9 -59.4	108.1	0	28.9 -59.4	108.1	0	28.9 -59.4	108.1	0	28.9 -59.4	108.1	0
3	1 40.8 -58.2	108.2	1 22.1 -58.4	108.2	1 03.3 -58.6	108.2	0 44.6 -58.8	108.2	0 25.8 -59.0	108.2	0 07.0 -59.1	108.2	0 11.7 +59.4	71.8	0 30.5 +59.5	71.8	3	30.5 +59.5	71.8	3	30.5 +59.5	71.8	3	30.5 +59.5	71.8	3
4	0 42.6 -58.1	108.4	0 23.7 -58.4	108.4	0 04.7 -58.6	108.4	0 14.2 +58.8	71.6	0 33.2 +59.0	71.6	0 52.1 +59.2	71.6	1 11.1 +59.3	71.6	1 30.0 +59.5	71.6	4	30.0 +59.5	71.6	4	30.0 +59.5	71.6	4	30.0 +59.5	71.6	4
5	0 15.5 +58.2	71.3	0 34.7 +58.4	71.3	0 53.9 +58.6	71.4	1 13.0 +58.9	71.4	1 51.3 +59.2	71.4	2 10.4 +59.3	71.5	2 29.5 +59.4	71.5	5 29.5 +59.4	71.5	5	29.5 +59.4	71.5	5	29.5 +59.4	71.5	5	29.5 +59.4	71.5	5
6	1 13.7 +58.1	71.1	1 33.1 +58.4	71.1	1 52.5 +58.6	71.1	2 11.9 +58.8	71.2	2 31.2 +59.0	71.2	2 05.5 +59.2	71.3	3 09.7 +59.4	71.3	3 28.9 +59.5	71.4	6	28.9 +59.5	71.4	6	28.9 +59.5	71.4	6	28.9 +59.5	71.4	6
7	2 11.8 +58.2	70.8	2 31.5 +58.4	70.9	2 51.1 +58.6	70.9	3 10.7 +58.8	71.0	3 30.2 +59.0	71.0	3 49.7 +59.1	71.1	4 09.1 +59.3	71.2	4 28.4 +59.5	71.2	7	28.4 +59.5	71.2	7	28.4 +59.5	71.2	7	28.4 +59.5	71.2	7
8	3 10.0 +58.1	70.6	3 29.9 +58.3	70.7	3 49.7 +58.6	70.7	4 09.5 +58.8	70.8	4 29.2 +59.0	70.9	4 48.8 +59.2	70.9	5 08.4 +59.3	71.0	5 27.9 +59.4	71.1	8	27.9 +59.4	71.1	8	27.9 +59.4	71.1	8	27.9 +59.4	71.1	8
9	4 08.1 +58.2	70.4	4 28.2 +58.4	70.4	4 48.3 +58.6	70.5	5 08.3 +58.8	70.6	5 28.2 +59.0	70.7	5 48.0 +59.2	70.8	6 07.7 +59.3	70.9	6 27.3 +59.5	71.0	9	27.3 +59.5	71.0	9	27.3 +59.5	71.0	9	27.3 +59.5	71.0	9
10	5 06.3 +58.1	70.1	5 26.6 +58.4	70.2	5 46.9 +58.6	70.3	6 07.1 +58.8	70.4	6 27.2 +59.0	70.5	6 47.2 +59.1	70.6	7 07.0 +59.4	70.7	7 26.8 +59.5	70.8	10	26.8 +59.5	70.8	10	26.8 +59.5	70.8	10	26.8 +59.5	70.8	10
11	6 04.4 +58.1	69.9	6 25.0 +58.4	70.0	6 45.5 +58.6	70.1	7 05.9 +58.8	70.2	7 26.2 +59.0	70.3	7 46.3 +59.2	70.4	8 06.4 +59.3	70.6	8 26.3 +59.4	70.7	11	26.3 +59.4	70.7	11	26.3 +59.4	70.7	11	26.3 +59.4	70.7	11
12	7 02.5 +58.1	69.6	7 23.4 +58.3	69.7	7 44.1 +58.6	69.9	8 04.7 +58.8	70.0	8 25.2 +58.9	70.1	8 45.5 +59.1	70.3	9 05.7 +59.3	70.4	9 25.7 +59.5	70.6	12	25.7 +59.5	70.6	12	25.7 +59.5	70.6	12	25.7 +59.5	70.6	12
13	8 00.6 +58.1	69.4	8 21.7 +58.4	69.5	8 42.7 +58.6	69.6	9 03.5 +58.8	69.8	9 24.1 +59.0	69.9	9 44.6 +59.2	70.1	10 05.0 +59.3	70.3	10 25.2 +59.4	70.4	13	25.2 +59.4	70.4	13	25.2 +59.4	70.4	13	25.2 +59.4	70.4	13
14	8 58.7 +58.2	69.1	9 20.1 +58.3	69.3	9 41.2 +58.6	69.4	10 02.3 +58.7	69.6	10 23.1 +59.0	69.7	10 43.8 +59.1	69.9	11 04.3 +59.3	70.1	11 24.6 +59.5	70.3	14	24.6 +59.5	70.3	14	24.6 +59.5	70.3	14	24.6 +59.5	70.3	14
15	9 56.9 +58.0	68.9	10 18.4 +58.3	69.0	10 39.8 +58.6	69.2	11 01.0 +58.8	69.4	11 22.1 +58.9	69.6	11 42.9 +59.2	69.8	12 03.6 +59.3	69.9	12 24.1 +59.4	70.2	15	24.1 +59.4	70.2	15	24.1 +59.4	70.2	15	24.1 +59.4	70.2	15
16	10 54.9 +58.1	68.6	11 16.7 +58.4	68.8	11 38.4 +58.5	69.0	11 59.8 +58.8	69.2	12 21.0 +59.0	69.4	12 41.2 +59.1	69.6	13 02.9 +59.3	69.8	13 23.5 +59.5	70.0	16	23.5 +59.5	70.0	16	23.5 +59.5	70.0	16	23.5 +59.5	70.0	16
17	11 53.0 +58.1	68.3	12 15.1 +58.3	68.5	12 36.9 +58.5	68.7	12 58.6 +58.7	69.0	13 20.0 +58.9	69.2	13 41.2 +59.1	69.4	14 02.2 +59.3	69.6	14 23.0 +59.4	69.9	17	23.0 +59.4	69.9	17	23.0 +59.4	69.9	17	23.0 +59.4	69.9	17
18	12 51.1 +58.0	68.1	13 13.4 +58.3	68.3	13 35.4 +58.6	68.5	13 57.3 +58.7	68.8	14 18.9 +59.0	69.0	14 40.3 +59.1	69.2	15 01.5 +59.3	69.5	15 22.4 +59.4	69.7	18	22.4 +59.4	69.7	18	22.4 +59.4	69.7	18	22.4 +59.4	69.7	18
19	13 49.1 +58.1	67.8	14 11.7 +58.2	68.1	14 34.0 +58.5	68.3	14 56.0 +58.8	68.5	15 17.9 +58.9	68.8	15 39.4 +59.2	69.1	16 00.8 +59.2	69.3	16 21.8 +59.5	69.6	19	21.8 +59.5	69.6	19	21.8 +59.5	69.6	19	21.8 +59.5	69.6	19
20	14 47.2 +58.0	67.6	15 09.9 +58.3	67.8	15 32.5 +58.5	68.1	15 54.8 +58.7	68.3	16 16.8 +58.9	68.6	16 38.6 +59.1	68.9	17 00.0 +59.3	69.2	17 21.3 +59.4	69.4	20	21.3 +59.4	69.4	20	21.3 +59.4	69.4	20	21.3 +59.4	69.4	20
21	15 45.2 +58.0	67.3	16 08.2 +58.2	67.6	16 31.0 +58.5	67.8	16 53.5 +58.7	68.1	17 15.7 +58.9	68.4	17 37.7 +59.0	68.7	17 59.3 +59.3	69.0	18 20.7 +59.4	69.3	21	20.7 +59.4	69.3	21	20.7 +59.4	69.3	21	20.7 +59.4	69.3	21
22	16 43.2 +57.9	67.0	17 06.4 +58.3	67.3	17 29.5 +58.4	67.6	17 52.2 +58.7	67.9	18 14.6 +58.9	68.2	18 36.7 +59.1	68.5	18 58.6 +59.2	68.8	19 20.1 +59.4	69.1	22	20.1 +59.4	69.1	22	20.1 +59.4	69.1	22	20.1 +59.4	69.1	22
23	17 41.1 +58.0	66.8	18 04.7 +58.2	67.1	18 27.9 +58.5	67.4	18 50.9 +58.6	67.7	19 13.5 +58.9	68.0	19 35.8 +59.1	68.3	19 57.8 +59.3	68.7	20 19.5 +59.4	69.0	23	19.5 +59.4	69.0	23	19.5 +59.4	69.0	23	19.5 +59.4	69.0	23
24	18 39.1 +57.9	66.5	19 02.9 +58.2	66.8	19 26.4 +58.4	67.1	19 49.5 +58.7	67.5	20 12.4 +58.8	67.8	20 34.9 +59.0	68.1	20 57.1 +59.2	68.5	21 18.9 +59.4	68.8	24	18.9 +59.4	68.8	24	18.9 +59.4	68.8	24	18.9 +59.4	68.8	24
25	19 37.0 +57.9	66.2	20 01.1 +58.1	66.5	20 24.8 +58.4	66.9	20 48.2 +58.6	67.2	21 11.2 +58.9	67.6	21 33.9 +59.1	67.9	21 56.3 +59.2	68.3	22 18.3 +59.3	68.7	25	18.3 +59.3	68.7	25	18.3 +59.3	68.7	25	18.3 +59.3	68.7	25
26	20 34.9 +57.9	65.9	20 59.2 +58.2	66.3	21 23.2 +58.4	66.6	21 46.8 +58.6	67.0	22 10.1 +58.8	67.4	22 33.0 +59.0	67.8	22 55.5 +59.2	68.1	23 17.6 +59.4	68.5	26	17.6 +59.4	68.5	26	17.6 +59.4	68.5	26	17.6 +59.4	68.5	26
27	21 32.8 +57.8	65.7	21 57.4 +58.1	66.0	22 21.6 +58.3	66.4	22 45.4 +58.6	66.8	23 08.9 +58.8	67.2	23 32.0 +59.0	67.6	23 54.7 +59.2	68.0	24 15.4 +59.4	68.4	27	15.4 +59.4	68.4	27	15.4 +59.4	68.4	27	15.4 +59.4	68.4	27
28	22 30.6 +57.9	65.4	22 55.5 +58.1	65.7	23 19.9 +58.4	66.1	23 44.0 +58.6	66.5	24 07.7 +58.8	66.9	24 31.0 +59.0	67.5	24 50.8 +59.2	68.1	25 13.0 +59.4	68.6	28	13.0 +59.4	68.6	28	13.0 +59.4	68.6	28	13.0 +59.4	68.6	28
29	23 17.0 +57.6	63.6	24 43.5 +57.9	64.0	23 37.7 +58.1	64.3	24 51.7 +58.4	64.6	25 03.7 +58.6	65.0	25 29.1 +58.7	65.5	25 50.8 +59.0	66.0	26 17.8 +59.3	66.4	30	17.8 +59.3	66.4	30	17.8 +59.3	66.4	30	17.8 +59.3	66.4	30
30	24 14.6 +57.5	64.8	24 51.6 +58.0	65.2	25 16.6 +58.3	65.6	25 41.1 +58.6	66.1	26 05.3 +58.7	66.5	26 29.0 +58.9	67.0	26 52.2 +59.2	67.4	27 15.1 +59.3	67.6	30	15.1 +59.3	67.6	30	15.1 +59.3	67.6	30	15.1 +59.3	67.6	30
31	25 24.0 +57.7	64.5	25 49.6 +58.0	64.9	26 14.9 +58.2	65.2	26																			

73°, 287° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	4 20.4 +58.1	106.5	4 03.4 +58.3	106.5	3 46.3 +58.5	106.6	3 29.1 +58.8	106.6	3 11.9 +59.0	106.7	2 54.6 +59.2	106.8	2 37.3 +59.3	106.8	2 19.9 +59.5	106.8	0	0	,	,	,	,	,	,	0
1	5 18.5 +58.1	106.2	5 01.7 +58.4	106.3	4 44.8 +58.6	106.4	4 27.9 +58.8	106.4	4 10.9 +59.0	106.5	3 53.8 +59.1	106.6	3 36.6 +59.3	106.7	3 19.4 +59.5	106.7	1	1	,	,	,	,	,	,	1
2	6 16.6 +58.1	106.0	6 00.1 +58.3	106.1	5 43.4 +58.6	106.2	5 26.7 +58.8	106.2	5 09.9 +58.9	106.3	4 52.9 +59.2	106.4	4 35.9 +59.4	106.5	4 18.9 +59.4	106.6	2	2	,	,	,	,	,	,	2
3	7 14.7 +58.1	105.7	6 58.4 +58.4	105.8	6 42.0 +58.6	105.9	6 25.5 +58.8	106.0	6 08.8 +59.0	106.2	5 51.2 +59.2	106.3	5 35.3 +59.3	106.4	5 18.3 +59.5	106.4	3	3	,	,	,	,	,	,	3
4	8 12.8 +58.1	105.5	7 56.8 +58.3	105.6	7 40.6 +58.5	105.7	7 24.3 +58.7	105.8	7 07.8 +59.0	106.0	6 51.3 +59.1	106.1	6 34.6 +59.3	106.2	6 17.8 +59.4	106.3	4	4	,	,	,	,	,	,	4
5	9 10.9 +58.1	105.2	8 55.1 +58.3	105.4	8 39.1 +58.6	105.5	8 23.0 +58.8	105.6	8 06.8 +59.0	105.8	7 50.4 +59.2	105.9	7 33.9 +59.3	106.0	7 17.2 +59.5	106.2	5	5	,	,	,	,	,	,	5
6	10 09.0 +58.1	104.9	9 53.4 +58.4	105.1	9 37.7 +58.6	105.3	9 21.8 +58.8	105.4	9 05.8 +58.9	105.6	8 49.6 +59.1	105.7	8 33.2 +59.3	105.9	8 16.7 +59.4	106.0	6	6	,	,	,	,	,	,	6
7	11 07.1 +58.0	104.7	10 51.8 +58.3	104.9	10 36.3 +58.5	105.1	10 20.6 +58.7	105.2	10 04.7 +59.0	105.4	9 48.7 +59.1	105.6	9 32.5 +59.3	105.7	9 16.1 +59.5	105.9	7	7	,	,	,	,	,	,	7
8	12 05.1 +58.1	104.4	11 50.1 +58.3	104.6	11 34.8 +58.5	104.8	11 19.3 +58.8	105.0	11 03.7 +58.9	105.2	10 47.8 +59.2	105.4	10 31.8 +59.3	105.6	10 15.6 +59.4	105.8	8	8	,	,	,	,	,	,	8
9	13 03.2 +58.1	104.2	12 48.4 +58.2	104.4	12 33.3 +58.5	104.6	12 18.1 +58.7	104.8	12 02.6 +59.0	105.0	11 47.0 +59.1	105.2	11 31.1 +59.3	105.4	11 15.0 +59.5	105.6	9	9	,	,	,	,	,	,	9
10	14 01.2 +58.1	103.9	13 46.6 +58.3	104.1	13 31.8 +58.6	104.4	13 16.8 +58.8	104.6	13 01.6 +58.9	104.8	12 46.1 +59.1	105.1	12 30.4 +59.3	105.3	12 14.5 +59.4	105.5	10	10	,	,	,	,	,	,	10
11	14 59.2 +58.0	103.6	14 44.9 +58.2	103.9	14 30.4 +58.4	104.2	14 15.6 +58.7	104.4	14 00.5 +58.9	104.6	13 45.2 +59.1	104.9	13 29.7 +59.3	105.1	13 13.9 +59.5	105.3	11	11	,	,	,	,	,	,	11
12	15 57.2 +57.9	103.4	15 43.1 +58.3	103.7	15 28.8 +58.5	103.9	15 14.3 +58.7	104.2	15 59.4 +58.9	104.5	14 44.3 +59.1	104.7	14 29.0 +59.2	105.0	14 13.4 +59.4	105.2	12	12	,	,	,	,	,	,	12
13	16 55.1 +58.0	103.1	16 41.4 +58.2	103.4	16 27.3 +58.5	103.7	16 13.0 +58.7	104.0	15 58.3 +59.0	104.3	15 43.4 +59.1	104.5	15 28.2 +59.3	104.8	15 12.8 +59.4	105.1	13	13	,	,	,	,	,	,	13
14	17 53.1 +57.0	102.8	17 39.6 +58.2	103.1	17 25.8 +58.4	103.5	17 11.7 +58.7	103.8	16 57.3 +58.8	104.1	16 42.5 +59.1	104.3	16 27.5 +59.3	104.6	16 12.2 +59.4	104.9	14	14	,	,	,	,	,	,	14
15	18 51.0 +57.9	102.6	18 37.8 +58.2	102.9	18 24.2 +58.5	103.2	18 10.4 +58.6	103.5	17 56.1 +58.9	103.9	17 41.6 +59.1	104.2	17 26.8 +59.2	104.5	17 11.6 +59.4	104.8	15	15	,	,	,	,	,	,	15
16	19 48.9 +57.9	102.3	19 36.0 +58.1	102.6	19 22.7 +58.4	103.0	19 09.0 +58.7	103.3	18 55.0 +58.9	103.7	18 40.7 +59.1	104.0	18 26.0 +59.3	104.3	18 11.0 +59.4	104.6	16	16	,	,	,	,	,	,	16
17	20 46.8 +57.8	102.0	20 34.1 +58.1	102.4	20 21.1 +58.4	102.7	20 07.7 +58.6	103.1	19 53.9 +58.8	103.4	19 39.8 +59.0	103.8	19 25.3 +59.2	104.1	19 10.4 +59.4	104.5	17	17	,	,	,	,	,	,	17
18	21 44.6 +57.8	101.7	21 32.2 +58.1	102.1	21 19.5 +58.3	102.5	21 06.3 +58.6	102.9	20 52.7 +58.9	103.2	20 38.8 +59.1	103.6	20 24.5 +59.2	104.0	20 09.8 +59.4	104.3	18	18	,	,	,	,	,	,	18
19	22 42.4 +57.8	101.4	22 30.3 +58.1	101.8	22 17.8 +58.4	102.2	22 04.9 +58.6	102.6	21 51.6 +58.8	103.0	21 37.9 +59.0	103.4	21 23.7 +59.3	103.8	21 09.2 +59.4	104.2	19	19	,	,	,	,	,	,	19
20	23 40.2 +57.8	101.1	23 28.4 +58.1	101.6	23 16.2 +58.3	102.0	23 03.5 +58.6	102.4	22 50.4 +58.8	102.8	22 36.9 +59.0	103.2	22 23.0 +59.2	103.6	22 08.6 +59.4	104.0	20	20	,	,	,	,	,	,	20
21	24 38.0 +57.7	100.8	24 26.5 +58.0	101.3	24 14.5 +58.3	101.7	24 02.1 +58.5	102.2	23 49.2 +58.8	102.6	23 35.9 +59.0	103.0	23 22.2 +59.1	103.5	23 08.0 +59.3	103.9	21	21	,	,	,	,	,	,	21
22	25 35.7 +57.7	100.5	25 24.5 +58.0	101.0	25 12.8 +58.2	101.5	25 00.6 +58.5	101.9	24 48.0 +58.8	102.4	24 34.9 +58.9	102.8	24 21.3 +59.2	103.3	24 07.3 +59.4	103.7	22	22	,	,	,	,	,	,	22
23	26 33.4 +57.6	100.2	26 22.5 +57.9	100.7	26 11.0 +58.3	101.2	25 59.1 +58.5	101.7	25 46.8 +58.7	102.2	25 33.9 +58.9	102.6	25 20.5 +59.2	103.1	25 06.7 +59.3	103.5	23	23	,	,	,	,	,	,	23
24	27 31.0 +57.6	99.9	27 20.4 +57.9	100.4	27 09.3 +58.2	100.9	26 57.6 +58.5	101.4	26 45.5 +58.7	101.9	26 32.8 +59.0	102.4	26 19.7 +59.1	102.9	26 06.0 +59.4	103.4	24	24	,	,	,	,	,	,	24
25	28 28.6 +57.5	99.6	28 18.3 +57.9	100.1	28 07.5 +58.2	100.7	27 56.1 +58.5	101.2	27 44.2 +58.7	101.7	27 31.8 +58.9	102.2	27 18.8 +59.2	102.7	27 05.4 +59.3	103.2	25	25	,	,	,	,	,	,	25
26	29 26.1 +57.5	99.3	29 16.2 +57.8	99.8	29 05.7 +58.1	100.4	28 54.6 +58.4	100.9	28 42.9 +58.7	101.5	28 30.7 +58.9	102.0	28 18.0 +59.1	102.5	28 04.7 +59.3	103.0	26	26	,	,	,	,	,	,	26
27	30 23.6 +57.5	98.9	30 14.0 +57.8	99.5	30 03.8 +58.1	100.1	29 53.0 +58.4	100.7	29 41.6 +58.6	101.2	29 29.6 +58.9	101.8	29 17.1 +59.1	102.3	29 04.0 +59.3	102.9	27	27	,	,	,	,	,	,	27
28	31 21.1 +57.4	98.6	31 11.8 +57.7	99.2	31 01.9 +58.1	99.8	30 51.4 +58.3	100.4	30 40.2 +58.7	101.0	30 28.5 +58.9	101.6	30 16.2 +59.1	102.1	30 03.3 +59.3	102.7	28	28	,	,	,	,	,	,	28
29	32 18.5 +57.3	98.3	32 09.5 +57.7	98.9	32 00.0 +58.0	99.5	31 49.7 +58.3	100.1	31 38.9 +58.6	100.7	31 27.4 +58.8	101.3	31 15.3 +59.0	101.9	31 02.6 +59.2	102.5	29	29	,	,	,	,	,	,	29
30	33 15.8 +57.3	97.9	33 07.2 +57.7	98.6	32 58.0 +57.9	99.2	32 48.0 +58.3	99.8	32 37.5 +58.5	100.5	32 26.2 +58.8	101.1	32 14.3 +59.1	101.7	32 01.8 +59.3	102.3	30	30	,	,	,	,	,	,	30
31	34 13.1 +57.2	97.6	34 04.9 +57.6	98.2	33 55.9 +58.0	98.9	33 46.3 +58.3	99.6	33 36.0 +58.5	100.2	33 25.0 +58.8	100.9	33 13.4 +59.0	101.5	33 01.1 +59.2	102.2	31	31	,	,	,	,	,	,	31
32	35 10.3 +57.2	97.2	35 02.5 +57.5	97.9	34 53.9 +57.8	98.6	34 44.6 +58.1	99.3	34 34.5 +58.5	100.0	34 23.8 +58.8	100.6	34 12.4 +59.0	101.3	34 00.3 +59.2	102.0	32	32	,	,	,	,	,	,	32
33	36 07.5 +57.1	96.8	36 00.0 +57.4	97.5	35 51.7 +57.9	98.3	35 42.7 +58.2	99.0	35 33.0 +58.5	99.7	35 22.6 +58.7	100.4	35 11.4 +59.0	101.1	34 59.5 +59.2	101.8	33	33	,	,	,	,	,	,	33
34	37 04.6 +57.0	96.4	37 24.1 +56.3	97.5	37 20.9 +56.9	98.6	37 16.6 +57.3	99.7	37 11.2 +57.7	100.5	37 04.6 +58.1	98.8	36 47.6 +58.5	99.4	36 10.4 +58.9	100.8	34	34	,	,	,	,	,	,	34
35	38 01.6 +56.9	96.0	37 54.8 +57.4	96.8	37 47.3 +57.7	97.6	37 39.0 +58.1	98.4	37 29.9 +58.4	99.1	37 20.0 +58.7	99.9	37 09.3 +58.9	100.6	36 57.9 +59.1	101.4	35	35	,	,	,	,	,	,	35
36	38 58.5 +56.8	95.6	38 52.2 +57.2	96																					

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 73°, 287°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.	
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z											
0	4 20.4 -58.1	106.5		4 03.4 -58.4	106.5		3 46.3 -58.6	106.6		3 29.1 -58.8	106.6		3 11.9 -59.0	106.7		2 54.6 -59.2	106.8		2 37.3 -59.3	106.8		2 19.9 -59.4	106.8		0	
1	3 22.3 -58.2	106.7		3 05.0 -58.4	106.8		2 47.7 -58.6	106.8		2 30.3 -58.8	106.8		2 12.9 -59.0	106.9		1 55.4 -59.1	106.9		1 38.0 -59.4	107.0		1 20.5 -59.5	107.0		1	
2	2 24.1 -58.1	106.9		2 06.6 -58.3	107.0		1 49.1 -58.6	107.0		1 31.5 -58.8	107.0		1 13.9 -59.0	107.1		0 56.3 -59.2	107.1		0 38.6 -59.3	107.1		0 21.0 -59.5	107.1		2	
3	1 26.0 -58.1	107.2		1 08.3 -58.4	107.2		0 50.5 -58.6	107.2		0 32.7 -58.8	107.2		0 14.9 -59.0	107.3												
4	0 27.9 -58.2	107.4		0 09.9 -58.4	107.4		0 08.1 +58.6	72.5		0 26.1 +58.8	72.6		0 44.1 +59.0	72.6												
5	0 30.3 +58.1	72.3		0 48.5 +58.4	72.3		1 06.7 +58.6	72.3		1 24.9 +58.8	72.4		1 43.1 +59.0	72.4		2 01.2 +59.2	72.4		2 19.3 +59.4	72.4		2 37.4 +59.5	72.5		5	
6	1 28.4 +58.1	72.1		1 46.9 +58.3	72.1		2 05.3 +58.6	72.1		2 23.7 +58.8	72.2		2 42.1 +59.0	72.2		3 00.4 +59.2	72.2		3 18.7 +59.3	72.3		3 36.9 +59.4	72.4		6	
7	2 26.5 +58.2	71.8		2 45.2 +58.4	71.9		3 03.9 +58.6	71.9		3 22.5 +58.8	72.0		3 41.1 +58.9	72.0		3 59.6 +59.1	72.1		4 18.0 +59.3	72.1		4 36.3 +59.5	72.2		7	
8	3 24.7 +58.1	71.6		3 43.6 +58.4	71.6		4 02.5 +58.6	71.7		4 21.3 +58.8	71.8		4 40.0 +59.0	71.8		4 58.7 +59.2	71.9		5 17.3 +59.3	72.0		5 35.8 +59.5	72.1		8	
9	4 22.8 +58.1	71.3		4 42.0 +58.3	71.4		5 01.1 +58.6	71.5		5 20.1 +58.8	71.6		5 39.0 +59.0	71.6		5 57.9 +59.1	71.7		6 16.6 +59.3	71.8		6 35.3 +59.4	72.0		9	
10	5 20.9 +58.1	71.1		5 40.3 +58.4	71.2		5 59.7 +58.5	71.3		6 18.9 +58.8	71.4		6 38.0 +59.0	71.5		6 57.0 +59.2	71.6		7 15.9 +59.3	71.7		7 34.7 +59.5	71.8		10	
11	6 19.0 +58.1	70.8		6 38.7 +58.3	70.9		6 58.2 +58.6	71.0		7 17.7 +58.7	71.2		7 37.0 +59.0	71.3		7 56.2 +59.1	71.4		8 15.2 +59.4	71.5		8 34.2 +59.4	71.7		11	
12	7 17.1 +58.1	70.6		7 37.0 +58.4	70.7		7 56.8 +58.6	70.8		8 16.4 +58.8	71.0		8 36.0 +58.9	71.1		8 55.3 +59.2	71.2		9 14.6 +59.3	71.4		9 33.6 +59.5	71.5		12	
13	8 15.2 +58.1	70.3		8 35.4 +58.3	70.5		8 55.4 +58.5	70.6		9 15.2 +58.8	70.7		9 34.9 +59.0	70.9		9 54.5 +59.1	71.1		10 13.9 +59.3	71.2		10 33.1 +59.4	71.4		13	
14	9 13.3 +58.1	70.1		9 33.7 +58.3	70.2		9 53.9 +58.6	70.4		10 14.0 +58.7	70.5		10 33.9 +58.9	70.7		10 53.6 +59.1	70.9		11 13.2 +59.3	71.1		11 32.5 +59.5	71.3		14	
15	10 11.4 +58.0	69.8		10 32.0 +58.3	70.0		10 52.5 +58.5	70.2		11 12.7 +58.8	70.3		11 32.8 +59.0	70.5		11 52.7 +59.2	70.7		12 12.5 +59.2	70.9		12 32.0 +59.4	71.1		15	
16	11 09.4 +58.1	69.5		11 30.3 +58.3	69.7		11 51.0 +58.5	69.9		12 11.5 +58.7	70.1		12 31.8 +58.9	70.3		12 51.9 +59.1	70.5		13 11.7 +59.3	70.8		13 31.4 +59.4	71.0		16	
17	12 07.5 +58.0	69.3		12 28.6 +58.3	69.5		12 49.5 +58.5	69.7		13 10.2 +58.8	69.9		13 30.7 +59.0	70.1		13 51.0 +59.1	70.4		14 11.0 +59.3	70.6		14 30.8 +59.5	70.9		17	
18	13 05.5 +58.1	69.0		13 26.9 +58.3	69.3		13 48.0 +58.5	69.5		14 09.0 +58.7	69.7		14 29.7 +58.9	69.9		14 50.1 +59.1	70.2		15 10.3 +59.3	70.4		15 30.3 +59.4	70.7		18	
19	14 03.6 +58.0	68.8		14 25.2 +58.2	69.0		14 46.5 +58.5	69.2		15 07.7 +58.7	69.5		15 28.6 +58.9	69.8		15 49.2 +59.1	70.0		16 09.6 +59.2	70.3		16 29.7 +59.4	70.6		19	
20	15 01.6 +58.0	68.5		15 23.4 +58.3	68.8		15 45.0 +58.5	69.0		16 06.4 +58.7	69.3		16 27.5 +58.9	69.6		16 48.3 +59.1	69.8		17 08.8 +59.3	70.1		17 29.1 +59.4	70.4		20	
21	15 59.6 +57.9	68.2		16 21.7 +58.2	68.5		16 43.5 +58.5	68.8		17 05.1 +58.7	69.1		17 26.4 +58.9	69.4		17 47.4 +59.1	69.7		18 08.1 +59.2	70.0		18 28.5 +59.4	70.3		21	
22	16 57.5 +58.0	68.0		17 19.9 +58.2	68.3		17 42.0 +58.4	68.5		18 03.8 +58.6	68.8		18 25.3 +58.8	69.2		18 46.5 +59.0	69.5		19 07.3 +59.3	69.8		19 27.9 +59.4	70.1		22	
23	17 55.5 +57.9	67.7		18 18.1 +58.2	68.0		18 40.4 +58.4	68.3		19 02.4 +58.7	68.6		19 24.1 +58.9	69.0		19 45.5 +59.1	69.3		20 06.6 +59.2	69.6		20 27.3 +59.4	70.0		23	
24	18 53.4 +57.9	67.4		19 16.3 +58.1	67.7		19 38.8 +58.4	68.1		20 01.1 +58.6	68.4		20 23.0 +58.8	68.7		20 44.6 +59.0	69.1		21 05.8 +59.2	69.5		21 26.7 +59.4	69.8		24	
25	19 51.3 +57.9	67.1		20 14.4 +58.2	67.5		20 37.2 +58.4	67.8		20 59.7 +58.6	68.2		21 21.8 +58.9	68.5		21 43.6 +59.0	68.8		22 05.0 +59.2	69.3		22 26.1 +59.3	69.7		25	
26	20 49.2 +57.8	66.9		21 12.6 +58.1	67.2		21 35.6 +58.4	67.6		21 58.3 +58.6	67.9		22 20.7 +58.8	68.3		22 42.6 +59.1	68.7		23 04.2 +59.2	69.1		23 25.4 +59.4	69.5		26	
27	21 47.0 +57.8	66.6		22 10.7 +58.1	66.9		22 34.0 +58.3	67.3		22 56.9 +58.6	67.7		23 19.5 +58.8	68.1		23 41.7 +59.0	68.5		24 03.4 +59.2	68.9		24 24.8 +59.4	69.3		27	
28	22 44.8 +57.8	66.3		23 08.8 +58.0	66.7		23 32.3 +58.3	67.1		23 55.3 +58.6	67.5		24 18.3 +58.8	67.9		24 40.7 +58.9	68.3		25 02.6 +59.2	68.7		25 24.2 +59.3	69.2		28	
29	23 42.6 +57.7	66.0		24 06.8 +58.0	66.4		24 30.6 +58.3	66.8		24 54.1 +58.5	67.2		25 17.1 +58.7	67.7		25 39.6 +59.0	68.1		26 01.8 +59.1	68.6		26 23.5 +59.3	69.0		29	
30	24 40.3 +57.8	65.7		25 04.8 +58.0	66.1		25 28.9 +58.3	66.6		25 52.6 +58.5	67.0		26 15.8 +58.7	67.4		26 38.6 +58.9	67.9		27 00.9 +59.2	68.4		27 22.8 +59.3	68.9		30	
31	25 38.1 +57.6	65.4		26 02.8 +58.0	65.8		26 27.2 +58.2	66.3		26 51.1 +58.5	66.7		27 14.5 +58.8	67.2		27 37.5 +59.0	67.7		28 00.1 +59.1	68.2		28 22.1 +59.3	68.7		31	
32	26 35.7 +57.7	65.1		27 00.8 +57.9	65.5		27 25.4 +58.2	66.0		27 49.6 +58.4	66.5		28 13.3 +58.6	67.0		28 36.5 +58.9	67.5		28 59.2 +59.1	68.0		29 21.4 +59.3	68.5		32	
33	27 33.4 +57.6	64.8		27 58.7 +57.9	65.3		28 23.6 +58.2	65.7		28 48.0 +58.4	66.2		29 11.9 +58.7	66.7		29 35.4 +58.9	67.3		29 58.3 +59.1	67.8		30 20.7 +59.3	68.3		33	
34	28 31.0 +57.5	64.5		28 56.6 +57.8	65.0		29 19.8 +57.2	61.2		30 26.5 +57.9	61.6		30 44.8 +58.4	62.3		30 52.6 +58.6	63.5		30 57.4 +59.1	64.2		31 20.0 +59.3	68.2		34	
35	29 28.5 +57.5	64.1		29 54.4 +57.8	64.6		30 19.9 +58.1	65.2		30 44.8 +58.4	65.7		31 09.2 +58.6	66.3		31 33.1 +58.9	66.8		31 55.6 +59.0	67.4		32 19.3 +59.2	68.0		35	
36	30 26.0 +57.5	63.8		30 52.2 +57.8	64.3		31 18.0 +58.0	64.9		31 43.2 +58.3	65.4		32 07.8 +58.6	66.0		32 32.0 +58.8	66.6		32 55.5 +59.1	67.2		33 18.5 +59.2	67.8		36	
37	31 23.5 +57.4	63.5		31 50.0 +57.7	64.0		32 16.0 +58.0	64.6		32 41.5 +58.3	65.2		33 06.4 +58.6	65.7		33 30.8 +58.8	66.4		33 54.6 +59.0	67.0		34 17.7 +59.2	67.6		37	
38	32 20.9 +57.3	63.1		32 47.7 +57.7	63.7		33 14.0 +58.0	64.3		33 39.8 +58.2	64.9	</														

74°, 286° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			Dec.	
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
0	4 05.5 +58.1	105.5	3 49.4 +58.4	105.5	3 33.3 +58.6	105.6	3 17.1 +58.8	105.7	3 00.9 +59.0	105.7	2 44.6 +59.2	105.8	2 28.3 +59.3	105.8	2 11.9 +59.5	105.9	0	0	0	0	0	0	0
1	5 03.6 +58.1	105.2	4 47.8 +58.3	105.3	4 31.9 +58.5	105.4	4 15.9 +58.8	105.5	3 59.9 +58.9	105.5	3 43.8 +59.1	105.6	3 27.6 +59.3	105.7	3 11.4 +59.4	105.7	1	0	0	0	0	0	0
2	6 01.7 +58.0	105.0	5 46.1 +58.3	105.1	5 30.4 +58.6	105.2	5 14.7 +58.8	105.3	4 58.8 +59.0	105.4	4 42.9 +59.2	105.4	4 26.9 +59.3	105.5	4 10.8 +59.5	105.6	2	0	0	0	0	0	0
3	6 59.7 +58.1	104.7	6 44.4 +58.4	104.8	6 29.0 +58.6	105.0	6 13.5 +58.7	105.1	5 57.8 +59.0	105.2	5 42.1 +59.1	105.3	5 26.2 +59.3	105.4	5 10.3 +59.4	105.4	3	0	0	0	0	0	0
4	7 57.8 +58.1	104.5	7 42.8 +58.3	104.6	7 27.6 +58.5	104.7	7 12.2 +58.8	104.9	6 56.8 +58.9	105.0	6 41.2 +59.2	105.1	6 25.5 +59.3	105.2	6 09.7 +59.5	105.3	4	0	0	0	0	0	0
5	8 55.9 +58.1	104.2	8 41.1 +58.3	104.4	8 26.1 +58.6	104.5	8 11.0 +58.8	104.7	7 55.7 +59.0	104.8	7 40.4 +59.1	104.9	7 24.8 +59.3	105.1	7 09.2 +59.4	105.2	5	0	0	0	0	0	0
6	9 54.0 +58.0	104.0	9 39.4 +58.3	104.1	9 24.7 +58.5	104.3	9 09.8 +58.7	104.5	8 54.7 +59.0	104.6	8 39.5 +59.1	104.8	8 24.1 +59.3	104.9	8 08.6 +59.5	105.0	6	0	0	0	0	0	0
7	10 52.0 +58.0	103.7	10 37.7 +58.3	103.9	10 23.2 +58.5	104.1	10 08.5 +58.8	104.2	9 53.7 +58.9	104.4	9 38.6 +59.2	104.6	9 23.4 +59.3	104.7	9 08.1 +59.4	104.9	7	0	0	0	0	0	0
8	11 50.0 +58.1	103.4	11 36.0 +58.3	103.7	11 21.7 +58.5	103.8	11 07.3 +58.7	104.0	10 52.6 +59.0	104.2	10 37.8 +59.1	104.4	10 22.7 +59.3	104.6	10 07.5 +59.5	104.8	8	0	0	0	0	0	0
9	12 48.1 +58.0	103.2	12 34.3 +58.2	103.4	12 20.2 +58.5	103.6	12 06.0 +58.7	103.8	11 51.6 +58.9	104.0	11 36.9 +59.1	104.2	11 22.0 +59.3	104.4	11 07.0 +59.4	104.6	9	0	0	0	0	0	0
10	13 46.1 +58.1	102.9	13 32.5 +58.3	103.2	13 18.7 +58.5	103.4	13 04.7 +58.7	103.6	12 50.5 +58.9	103.8	12 36.0 +59.1	104.1	12 21.3 +59.3	104.3	12 06.4 +59.4	104.5	10	0	0	0	0	0	0
11	14 44.1 +57.9	102.7	14 30.8 +58.2	102.9	14 17.2 +58.5	103.2	14 03.4 +58.8	103.4	13 49.4 +58.9	103.7	13 35.1 +59.1	103.9	13 20.6 +59.3	104.1	13 05.8 +59.5	104.3	11	0	0	0	0	0	0
12	15 42.0 +58.0	102.4	15 29.0 +58.2	102.7	15 15.7 +58.5	102.9	15 02.2 +58.6	103.2	14 48.3 +58.9	103.5	14 34.2 +59.1	103.7	14 19.9 +59.2	104.0	14 05.3 +59.4	104.2	12	0	0	0	0	0	0
13	16 40.0 +57.9	102.1	16 27.2 +58.2	102.4	16 14.2 +58.4	102.7	16 00.8 +58.7	103.0	15 47.2 +58.9	103.3	15 33.3 +59.1	103.5	15 19.1 +59.3	103.8	15 04.7 +59.4	104.1	13	0	0	0	0	0	0
14	17 37.9 +57.9	101.9	17 25.4 +58.2	102.2	17 12.6 +58.5	102.5	16 59.5 +58.7	102.8	16 46.1 +58.9	103.1	16 32.4 +59.1	103.4	16 18.4 +59.3	103.6	16 04.1 +59.4	103.9	14	0	0	0	0	0	0
15	18 35.8 +57.9	101.6	18 23.6 +58.2	101.9	18 11.1 +58.4	102.2	17 58.2 +58.7	102.5	17 45.0 +58.9	102.9	17 31.5 +59.1	103.2	17 17.7 +59.2	103.5	17 03.5 +59.4	103.8	15	0	0	0	0	0	0
16	19 33.7 +57.9	101.3	19 21.8 +58.1	101.6	19 09.5 +58.4	102.0	18 56.9 +58.6	102.3	18 43.9 +58.8	102.7	18 30.6 +59.1	103.0	18 16.9 +59.3	103.3	18 02.9 +59.4	103.6	16	0	0	0	0	0	0
17	20 31.6 +57.8	101.0	20 19.9 +58.1	101.4	20 07.9 +58.4	101.7	19 55.5 +58.6	102.1	19 42.7 +58.9	102.5	19 29.6 +59.1	102.8	19 16.2 +59.2	103.1	19 02.3 +59.4	103.5	17	0	0	0	0	0	0
18	21 29.4 +57.8	100.7	21 18.0 +58.1	101.1	21 06.3 +58.3	101.5	20 54.1 +58.6	101.9	20 41.6 +58.8	102.2	20 28.7 +59.0	102.6	20 15.4 +59.2	103.0	20 01.7 +59.4	103.3	18	0	0	0	0	0	0
19	22 27.2 +57.8	100.4	22 16.1 +58.1	100.8	22 04.6 +58.3	101.2	21 52.7 +58.6	101.6	21 40.4 +58.8	102.0	21 27.7 +59.0	102.4	21 14.6 +59.2	102.8	21 01.1 +59.4	103.2	19	0	0	0	0	0	0
20	23 25.0 +57.7	100.1	23 14.2 +58.0	100.6	23 02.9 +58.4	101.0	22 51.3 +58.6	101.4	22 39.2 +58.8	101.8	22 26.7 +59.0	102.2	22 13.8 +59.2	102.6	22 00.5 +59.4	103.0	20	0	0	0	0	0	0
21	24 22.7 +57.7	99.8	24 12.2 +58.0	100.3	24 01.3 +58.2	100.7	23 49.9 +58.5	101.2	23 38.0 +58.8	101.6	23 25.7 +59.0	102.0	23 13.0 +59.2	102.4	22 55.9 +59.3	102.9	21	0	0	0	0	0	0
22	25 20.4 +57.7	99.5	25 10.2 +58.0	100.0	24 59.5 +58.3	100.5	24 48.4 +58.5	100.9	24 36.8 +58.7	101.4	24 24.7 +59.0	101.8	24 12.2 +59.2	102.3	23 59.2 +59.4	102.7	22	0	0	0	0	0	0
23	26 18.1 +57.6	99.2	26 08.2 +57.9	99.7	25 57.8 +58.2	100.2	25 46.9 +58.5	100.7	25 35.5 +58.8	101.2	25 23.7 +58.9	101.6	25 11.4 +59.1	102.1	24 58.6 +59.3	102.5	23	0	0	0	0	0	0
24	27 15.7 +57.6	98.9	27 06.1 +57.9	99.4	26 56.0 +58.2	99.9	26 45.4 +58.5	100.4	26 34.3 +58.7	100.9	26 22.6 +59.0	101.4	26 10.5 +59.2	101.9	25 57.9 +59.3	102.4	24	0	0	0	0	0	0
25	28 13.3 +57.5	98.6	28 04.0 +57.9	99.1	27 54.2 +58.2	99.7	27 43.9 +58.4	100.2	27 33.0 +58.7	100.7	27 21.6 +58.9	101.2	27 09.7 +59.1	101.7	26 57.2 +59.3	102.2	25	0	0	0	0	0	0
26	29 10.8 +57.5	98.3	29 01.9 +57.8	98.8	28 52.4 +58.1	99.4	28 42.3 +58.4	99.9	28 31.7 +58.6	100.5	28 20.5 +58.9	101.0	28 08.8 +59.1	101.5	27 56.5 +59.3	102.0	26	0	0	0	0	0	0
27	30 08.3 +57.4	98.0	29 59.7 +57.8	98.5	29 50.5 +58.1	99.1	29 40.7 +58.4	99.7	29 30.3 +58.7	100.2	29 19.4 +58.9	100.8	29 07.9 +59.1	101.3	28 55.8 +59.3	101.9	27	0	0	0	0	0	0
28	31 05.7 +57.4	97.6	30 57.5 +57.7	98.2	30 48.6 +58.0	98.8	30 39.1 +58.3	99.4	30 29.0 +58.6	100.0	30 18.3 +58.8	100.6	30 07.0 +59.1	101.1	29 55.1 +59.3	101.7	28	0	0	0	0	0	0
29	32 03.1 +57.3	97.3	31 55.2 +57.7	97.9	31 46.6 +58.0	98.5	31 37.4 +58.3	99.1	31 27.6 +58.6	99.7	31 17.1 +58.0	100.3	31 06.1 +59.0	100.9	30 54.4 +59.3	101.5	29	0	0	0	0	0	0
30	33 00.4 +57.3	96.9	32 52.9 +57.6	97.6	32 44.6 +58.0	98.2	32 35.7 +58.3	98.8	32 26.2 +58.5	99.5	32 16.0 +58.8	100.1	32 05.1 +59.1	100.7	31 53.7 +59.2	101.3	30	0	0	0	0	0	0
31	33 57.7 +57.2	96.6	33 50.5 +57.6	97.2	33 42.6 +57.9	97.9	33 34.0 +58.2	98.6	33 24.7 +58.5	99.2	33 14.8 +58.9	99.9	33 04.2 +59.0	100.5	32 52.9 +59.2	101.1	31	0	0	0	0	0	0
32	34 54.9 +57.1	96.2	34 48.1 +57.5	96.9	34 40.5 +57.9	97.6	34 32.2 +58.2	98.3	34 32.3 +58.5	98.9	34 13.6 +58.7	99.6	34 03.2 +59.0	100.3	33 52.1 +59.2	101.0	32	0	0	0	0	0	0
33	35 52.0 +57.1	95.8	35 45.6 +57.4	96.5	35 38.4 +57.8	97.3	35 30.4 +58.2	98.0	35 21.7 +58.5	98.7	35 12.3 +58.7	99.4	35 02.2 +58.9	100.1	34 51.3 +59.2	100.8	33	0	0	0	0	0	0
34	36 49.1 +57.0	95.4	36 43.0 +57.3	95.1	36 34.9 +57.6	95.8	36 27.4 +58.0	96.9	36 20.8 +58.4	97.4	36 14.2 +58.7	98.1	36 04.1 +59.0	98.8	35 40.6 +58.8	99.5	34	0	0	0	0	0	0
35	37 46.1 +56.9	95.1	37 40.4 +57.3	95.8	37 33.9 +57.7	96.6	37 26.6 +58.1	97.4	37 18.6 +58.3	98.1	37 09.7 +58.7	98.9	37 00.1 +58.9	99.6	36 49.7 +59.1	100.3	35	0	0	0	0	0	0
36	38 43.0 +56.8	94.7	38 37.7 +57.3	95.4	38 31.6 +57.6	96.2	38 24.7 +58.0	97.0	38 16.9 +58.3	97.8	38 08.4 +58.6	98.6	37 59.0 +58.9										

LATITUDE CONTRARY NAME TO DECLINATION **L.H.A. 74°, 286°**

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.	
	Hc	d	Z																							
0	4 05.5 -58.1	105.5		3 49.4 -58.3	105.5		3 33.3 -58.6	105.6		3 17.1 -58.8	105.7		3 00.9 -59.0	105.7		2 44.6 -59.1	105.8		2 28.3 -59.3	105.8		2 11.9 -59.5	105.9		0	
1	3 07.4 -58.2	105.7		2 51.1 -58.4	105.8		2 34.7 -58.6	105.8		2 18.3 -58.8	105.9		2 01.9 -59.0	105.9		1 45.5 -59.2	105.9		1 29.0 -59.4	106.0		1 12.4 -59.4	106.0		1	
2	2 09.2 -58.1	106.0		1 52.7 -58.3	106.0		1 36.1 -58.5	106.0		1 19.5 -58.7	106.1		1 02.9 -59.0	106.1		0 46.3 -59.2	106.1		0 29.6 -59.3	106.1		0 13.0 -59.5	106.1		2	
3	1 11.1 -58.1	106.2		0 54.4 -58.4	106.2		0 37.6 -58.6	106.3		0 20.8 -58.8	106.3		0 03.9 -58.9	106.3												
4	0 13.0 -58.1	106.5		0 04.0 +58.4	73.5		0 21.0 +58.6	73.5		0 38.0 +58.8	73.5		0 55.0 +59.0	73.5		1 12.0 +59.2	73.6		0 29.7 +59.3	73.7		0 46.5 +59.4	73.7		3	
5	0 45.1 +58.1	73.3		1 02.4 +58.3	73.3		1 19.6 +58.6	73.3		1 36.8 +58.8	73.3		1 54.0 +59.0	73.4		2 11.2 +59.1	73.4		2 28.3 +59.3	73.4		2 45.4 +59.5	73.5		5	
6	1 43.2 +58.1	73.0		2 00.7 +58.4	73.1		2 18.2 +58.6	73.1		2 35.6 +58.8	73.1		2 53.0 +59.0	73.2		3 10.3 +59.2	73.2		3 27.6 +59.3	73.3		3 44.9 +59.4	73.3		6	
7	2 41.3 +58.1	72.8		2 59.1 +58.3	72.8		3 16.8 +58.5	72.9		3 34.4 +58.8	72.9		3 52.0 +59.0	73.0		4 09.5 +59.1	73.1		4 26.9 +59.4	73.1		4 44.3 +59.5	73.2		7	
8	3 39.4 +58.1	72.5		3 57.4 +58.4	72.6		4 15.3 +58.6	72.7		4 33.2 +58.8	72.7		4 51.0 +58.9	72.8		5 08.6 +59.2	72.9		5 26.3 +59.3	73.0		5 43.8 +59.4	73.1		8	
9	4 37.5 +58.1	72.3		4 55.8 +58.3	72.4		5 13.9 +58.6	72.4		5 32.0 +58.7	72.5		5 49.9 +59.0	72.6		6 07.8 +59.1	72.7		6 25.6 +59.3	72.8		6 43.2 +59.5	72.9		9	
10	5 35.6 +58.1	72.0		5 54.1 +58.3	72.1		6 12.5 +58.5	72.2		6 30.7 +58.8	72.3		6 48.9 +59.0	72.4		7 06.9 +59.2	72.6		7 24.9 +59.3	72.7		7 42.7 +59.4	72.8		10	
11	6 33.7 +58.1	71.8		6 52.4 +58.4	71.9		7 11.0 +58.6	72.0		7 29.5 +58.8	72.1		7 47.9 +58.9	72.3		8 06.1 +59.1	72.4		8 24.2 +59.3	72.5		8 42.1 +59.5	72.7		11	
12	7 31.8 +58.1	71.5		7 50.8 +58.3	71.6		8 09.6 +58.5	71.8		8 28.3 +58.7	71.9		8 46.8 +59.0	72.1		9 05.2 +59.2	72.2		9 23.5 +59.3	72.4		9 41.6 +59.4	72.5		12	
13	8 29.9 +58.0	71.3		8 49.1 +58.3	71.4		9 08.1 +58.6	71.6		9 27.0 +58.8	71.7		9 45.8 +58.9	71.9		10 04.4 +59.1	72.0		10 22.8 +59.3	72.2		10 41.0 +59.4	72.4		13	
14	9 27.9 +58.1	71.0		9 47.4 +58.3	71.2		10 06.7 +58.5	71.3		10 25.8 +58.7	71.5		10 44.7 +59.0	71.7		11 03.5 +59.1	71.9		11 22.1 +59.3	72.1		11 40.4 +59.5	72.3		14	
15	10 26.0 +58.0	70.8		10 45.7 +58.3	70.9		11 05.2 +58.5	71.1		11 24.5 +58.8	71.3		11 43.7 +58.9	71.5		12 02.6 +59.1	71.7		12 21.4 +59.2	71.9		12 39.9 +59.4	72.1		15	
16	11 24.0 +58.1	70.5		11 44.0 +58.3	70.7		12 03.7 +58.5	70.9		12 23.3 +58.7	71.1		12 42.6 +58.9	71.3		13 01.7 +59.1	71.5		13 20.6 +59.3	71.7		13 39.3 +59.4	72.0		16	
17	12 22.1 +58.0	70.2		12 42.3 +58.2	70.4		13 02.2 +58.5	70.7		13 22.0 +58.7	70.9		13 41.5 +58.9	71.1		14 00.8 +59.1	71.3		14 19.9 +59.3	71.6		14 38.7 +59.5	71.8		17	
18	13 20.1 +58.0	70.0		13 40.5 +58.3	70.2		14 00.7 +58.5	70.4		14 20.7 +58.7	70.7		14 40.4 +58.9	70.9		15 59.9 +59.1	71.2		15 19.2 +59.2	71.4		15 38.2 +59.4	71.7		18	
19	14 18.1 +58.0	69.7		14 38.8 +58.2	70.0		14 59.2 +58.5	70.2		15 19.4 +58.7	70.5		15 39.3 +58.9	70.7		15 59.0 +59.1	71.0		16 18.4 +59.3	71.3		16 37.6 +59.4	71.5		19	
20	15 16.1 +57.9	69.4		15 37.0 +58.2	69.7		15 57.7 +58.4	70.0		16 18.1 +58.7	70.2		16 38.2 +58.9	70.5		16 58.1 +59.1	70.8		17 17.7 +59.2	71.1		17 37.0 +59.4	71.4		20	
21	16 14.0 +58.0	69.2		16 35.2 +58.2	69.5		16 56.1 +58.5	69.7		17 16.8 +58.6	70.0		17 37.1 +58.9	70.3		17 57.2 +59.1	70.6		18 16.9 +59.3	70.9		18 36.4 +59.4	71.2		21	
22	17 12.0 +57.9	68.9		17 33.4 +58.2	69.2		17 54.6 +58.4	69.5		18 15.4 +58.7	69.8		18 36.0 +58.9	70.1		18 56.3 +59.0	70.4		19 16.2 +59.2	70.8		19 35.8 +59.4	71.1		22	
23	18 09.9 +57.9	68.6		18 31.6 +58.1	68.9		18 53.0 +58.4	69.3		19 14.1 +58.6	69.6		19 34.9 +58.8	69.9		19 55.3 +59.0	70.2		20 15.4 +59.2	70.6		20 35.2 +59.4	70.9		23	
24	19 07.8 +57.8	68.4		19 29.7 +58.2	68.7		19 51.4 +58.4	69.0		20 12.7 +58.6	69.4		20 33.7 +58.8	69.7		20 54.3 +59.1	70.1		21 14.6 +59.2	70.4		21 34.6 +59.3	70.8		24	
25	20 05.6 +57.9	68.1		20 27.9 +58.1	68.4		20 49.8 +58.3	68.8		21 11.3 +58.6	69.1		21 32.5 +58.8	69.5		21 53.4 +59.0	69.9		22 13.8 +59.2	70.2		22 33.9 +59.4	70.6		25	
26	21 03.5 +57.8	67.8		21 26.0 +58.1	68.2		21 48.1 +58.4	68.5		22 09.9 +58.6	68.9		22 31.3 +58.8	69.3		22 54.2 +59.0	69.7		23 13.0 +59.2	70.1		23 33.3 +59.3	70.5		26	
27	22 01.3 +57.8	67.5		22 24.1 +58.0	67.9		22 46.5 +58.3	68.3		23 08.5 +58.6	68.7		23 30.1 +58.8	69.1		23 51.4 +59.0	69.5		24 12.2 +59.2	69.9		24 32.6 +59.4	70.3		27	
28	22 59.1 +57.7	67.2		23 22.1 +58.1	67.6		23 44.8 +58.3	68.0		24 07.1 +58.5	68.4		24 28.9 +58.8	68.4		24 50.4 +58.9	69.3		25 11.4 +59.2	69.7		25 32.0 +59.3	70.2		28	
29	23 56.8 +57.7	66.9		24 20.2 +58.0	67.3		24 43.1 +58.2	67.7		25 05.6 +58.5	68.2		25 27.7 +58.7	68.6		25 49.3 +59.0	69.1		26 10.6 +59.1	69.5		26 31.3 +59.3	70.0		29	
30	24 54.5 +57.7	66.6		25 18.2 +57.9	67.0		25 41.3 +58.3	67.5		26 04.1 +58.5	67.9		26 26.4 +58.7	68.4		26 48.3 +58.9	68.8		27 09.7 +59.1	69.3		27 30.6 +59.3	69.8		30	
31	25 52.2 +57.7	66.3		26 16.1 +58.0	66.8		26 39.6 +58.2	67.2		27 02.6 +58.4	67.7		27 25.1 +58.7	68.2		27 47.2 +58.9	68.6		28 08.8 +59.1	69.1		28 29.9 +59.3	69.6		31	
32	26 49.9 +57.6	66.0		27 14.1 +57.8	66.5		27 37.8 +58.1	66.9		28 01.0 +58.5	67.4		28 23.8 +58.7	67.9		29 46.1 +59.0	68.4		29 07.9 +59.1	68.9		29 29.2 +59.3	69.5		32	
33	27 47.5 +57.6	65.7		28 11.9 +57.9	66.2		28 35.9 +58.2	66.7		29 59.5 +58.4	67.2		29 22.5 +58.6	67.7		29 45.0 +58.9	68.2		30 07.0 +59.1	68.7		30 28.5 +59.3	69.3		33	
34	28 45.0 +57.5	65.4		29 09.8 +57.8	65.9		29 34.1 +58.1	66.4		29 57.9 +58.3	66.9		30 21.1 +58.7	67.4		30 43.9 +58.8	68.0		31 06.1 +59.1	68.5		31 27.8 +59.2	69.1		34	
35	29 42.5 +57.5	65.0		30 07.6 +57.8	65.6		30 32.2 +58.0	66.1		30 56.2 +58.4	66.6		31 19.8 +58.5	67.2		31 42.7 +58.9	67.8		32 05.2 +59.0	68.3		32 27.0 +59.3	68.9		35	
36	30 40.0 +57.4	64.7		31 05.4 +57.7	65.2		31 30.2 +58.1	65.8		31 54.6 +58.3	66.4		32 18.3 +58.6	66.9		32 41.6 +58.8	67.5		33 04.2 +59.0	68.1		33 26.3 +59.2	68.7		36	
37	31 37.4 +57.4	64.4		32 03.1 +57.7	64.9		32 28.3 +57.9	65.5		32 52.9 +58.2	66.1		33 16.9 +58.5	66.7		33 40.4 +59.0	67.3		34 03.2 +59.0	67.9		34 25.5 +59.2	68.5		37	
38	32 34.8 +57.3	64.0		33 00.8 +57.6	64.6		33 26.2 +58.0	65.2		33 51.1 +58																

75°, 285° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	75°			76°			77°			78°			79°			80°			81°			82°			Dec.											
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.											
0	3 50.5 +58.0	104.5	3 35.4 +58.3	104.6	3 20.3 +58.5	104.6	3 05.1 +58.8	104.7	2 49.8 +59.0	104.7	2 34.6 +59.1	104.8	2 19.2 +59.3	104.8	2 03.9 +59.4	104.9	0	0	,	,	,	,	,	,	0											
1	4 48.5 +58.1	104.3	4 33.7 +58.3	104.3	4 18.8 +58.6	104.4	4 03.9 +58.7	104.5	3 48.8 +59.0	104.6	3 33.7 +59.1	104.6	3 18.5 +59.3	104.7	3 03.3 +59.5	104.7	1	9 38.9 +58.0	103.0	9 25.3 +58.3	103.2	9 11.6 +58.5	103.3	9 5.6 +58.7	103.3	9 00.0 +59.4	103.9	7								
2	5 46.6 +58.1	104.0	5 32.0 +58.4	104.1	5 17.4 +58.5	104.2	5 02.6 +58.8	104.3	4 47.8 +58.9	104.4	4 32.8 +59.2	104.4	4 17.8 +59.3	104.5	4 02.8 +59.4	104.6	2	6 44.7 +58.1	103.8	6 30.4 +58.3	103.9	6 15.9 +58.6	104.0	6 01.4 +58.7	104.1	5 59.4 +59.5	104.5	3								
3	7 42.8 +58.0	103.5	7 28.7 +58.3	103.6	7 14.5 +58.5	103.8	7 00.1 +58.8	103.9	6 45.7 +59.0	104.0	6 32.0 +59.1	104.3	6 17.1 +59.4	104.4	5 02.2 +59.5	104.5	3	5 8 40.8 +58.1	103.2	5 27.0 +58.3	103.4	5 13.6 +58.8	103.5	5 01.1 +59.4	104.3	4 59.4 +59.4	104.3	4								
4	5 8 40.8 +58.1	103.2	5 27.0 +58.3	103.4	5 13.6 +58.8	103.5	5 08.9 +58.8	103.7	7 44.7 +58.9	103.8	7 30.3 +59.1	103.9	7 15.8 +59.3	104.1	7 01.1 +59.5	104.2	5	9 38.9 +58.0	103.0	9 25.3 +58.3	103.2	9 11.6 +58.5	103.3	9 5.6 +58.7	103.3	9 00.0 +59.4	103.9	7								
5	10 36.9 +58.0	102.7	10 23.6 +58.2	102.9	10 10.1 +58.5	103.1	9 56.4 +58.7	103.3	9 42.6 +58.9	103.4	9 28.5 +59.2	103.6	9 14.3 +59.3	103.8	9 00.0 +59.4	103.9	7	8 11.34.9 +58.0	102.5	8 11.28.6 +58.5	102.9	8 10.45.1 +58.8	103.1	8 02.77.7 +59.1	103.4	8 59.4 +59.5	103.8	8								
6	12 32.9 +58.0	102.2	12 20.1 +58.3	102.4	12 07.1 +58.5	102.6	11 53.9 +58.7	102.8	11 40.4 +58.9	103.0	11 26.8 +59.1	103.2	11 12.9 +59.3	103.4	10 58.9 +59.4	103.6	9	13 30.9 +58.1	101.9	13 18.4 +58.2	102.2	13 05.6 +58.5	102.4	12 52.6 +58.7	102.6	12 22.2 +59.3	103.3	11 58.3 +59.4	103.5	10						
7	14 28.9 +57.9	101.7	14 16.6 +58.2	101.9	14 04.1 +58.4	102.2	13 51.3 +58.7	102.4	13 38.3 +58.9	102.7	13 25.0 +59.1	102.9	13 11.5 +59.3	103.1	12 57.7 +59.5	103.4	11	15 26.8 +58.0	101.4	15 14.8 +58.2	101.7	15 02.5 +58.5	101.9	14 50.0 +58.7	102.2	14 37.2 +59.1	102.5	14 10.8 +59.2	103.0	12 57.2 +59.4	103.2	12				
8	16 24.8 +57.9	101.1	16 13.0 +58.2	101.4	16 01.0 +58.4	101.7	15 48.7 +58.6	102.0	15 36.1 +58.8	102.3	15 23.2 +59.1	102.5	15 10.0 +59.3	102.8	14 56.6 +59.4	103.1	13	17 22.7 +57.9	100.9	17 11.2 +58.2	101.2	16 59.4 +58.5	101.5	16 47.3 +58.7	101.8	16 34.9 +58.9	102.1	16 22.3 +59.0	102.4	16 09.3 +59.2	102.6	15 56.0 +59.4	102.9	14		
9	18 20.6 +57.8	100.6	18 09.4 +58.1	100.9	17 57.9 +58.4	101.2	17 46.0 +58.6	101.6	17 33.8 +58.9	101.9	17 21.3 +59.1	102.2	17 08.5 +59.3	102.5	16 55.4 +59.4	102.8	15	19 18.4 +57.9	100.3	19 07.5 +58.2	100.7	18 56.3 +58.5	101.0	18 44.6 +58.7	101.3	18 32.7 +58.8	101.7	18 20.4 +59.1	102.0	18 07.8 +59.2	102.3	17 54.8 +59.4	102.6	16		
10	20 16.3 +57.8	100.0	20 05.7 +58.1	100.4	19 54.6 +58.4	100.8	19 43.3 +58.6	101.1	19 31.5 +58.9	101.5	19 19.4 +59.1	101.8	19 07.0 +59.2	102.1	18 54.2 +59.4	102.5	17	22 11.9 +57.8	99.5	22 01.8 +58.1	99.9	21 51.4 +58.3	100.3	21 40.5 +58.5	100.6	21 29.2 +58.8	101.0	21 17.5 +59.0	101.4	21 05.4 +59.2	101.8	20 53.0 +59.3	102.2	19		
11	24 07.4 +57.7	98.9	23 57.9 +58.0	99.3	23 48.0 +58.2	99.7	23 37.6 +58.5	100.2	23 26.8 +58.7	100.6	23 15.5 +59.0	101.0	23 03.8 +59.2	101.4	22 51.7 +59.4	101.9	21	26 23.7 +57.7	97.2	26 13.1 +57.9	97.5	25 55.9 +58.3	99.0	25 44.6 +58.7	99.4	25 33.6 +58.9	100.2	25 22.3 +59.1	100.6	25 10.8 +59.4	102.9	24				
12	28 55.4 +57.5	97.3	28 47.5 +57.8	97.8	28 39.0 +58.0	98.4	28 30.0 +58.4	98.9	28 20.4 +58.7	99.5	28 10.3 +58.8	100.0	28 0.8 +58.9	100.6	27 59.6 +59.1	100.5	27 48.4 +59.3	101.0	26	30 50.3 +57.4	96.6	30 43.1 +57.7	97.2	30 35.2 +58.1	98.4	30 26.8 +58.3	98.4	30 17.7 +58.6	99.0	30 08.0 +58.9	99.6	29 57.8 +59.1	100.1	29 46.9 +59.3	100.7	28
13	32 45.0 +57.3	95.9	32 38.5 +57.6	96.6	32 31.3 +57.9	97.2	32 23.4 +58.2	97.8	32 14.9 +58.5	98.5	32 05.7 +58.8	99.1	31 55.9 +59.0	99.7	31 45.5 +59.2	100.3	30	33 42.3 +57.2	95.6	33 36.1 +57.5	96.2	33 29.2 +57.9	96.9	33 19.6 +58.3	97.6	33 04.5 +58.8	98.9	32 54.9 +59.0	99.5	32 44.7 +59.2	100.1	31				
14	34 39.5 +57.1	95.2	34 33.6 +57.5	95.9	34 27.1 +57.9	96.6	34 19.9 +58.1	97.3	34 11.9 +58.5	97.9	34 03.3 +58.7	98.6	33 53.9 +59.0	99.3	33 43.9 +59.2	99.9	32	35 36.6 +57.0	94.8	35 31.1 +57.5	95.6	35 25.0 +57.8	96.3	35 18.0 +58.2	97.0	35 04.0 +58.4	97.7	34 52.9 +59.0	99.1	34 43.1 +59.2	99.7	33				
15	36 33.6 +57.0	94.5	36 28.8 +57.4	95.9	36 22.8 +57.5	95.9	36 16.2 +58.1	96.7	36 08.8 +58.4	97.5	36 00.7 +58.7	98.1	31 51.5 +58.3	98.1	31 46.9 +58.9	99.3	30	36 50.9 +56.8	93.7	36 43.0 +57.2	94.5	36 35.2 +57.5	95.0	36 28.0 +57.8	95.5	36 19.0 +58.2	96.8	35 42.3 +59.2	99.5	34						
16	37 30.6 +56.9	94.1	37 26.0 +57.3	94.8	37 20.5 +57.7	95.6	37 14.3 +58.0	96.4	37 07.2 +58.4	97.1	36 59.4 +58.7	97.9	36 50.8 +58.9	98.6	36 41.5 +59.1	99.3	35	38 27.5 +56.8	93.7	38 23.3 +57.2	94.5	38 12.3 +58.0	96.0	38 05.6 +58.3	96.8	37 58.1 +58.6	97.6	37 49.7 +58.9	99.1	36						
17	39 24.3 +56.8	93.3	39 20.5 +57.2	94.1	39 15.8 +57.4	95.9	39 10.3 +57.9	95.7	39 03.9 +58.2	96.5	38 56.7 +58.5	97.3	38 48.6 +58.9	98.1	38 39.7 +59.1	98.9	37	40 21.1 +56.6	92.8	40 17.7 +57.0	93.7	40 13.4 +57.4	94.5	40 08.2 +57.9	95.4	39 55.2 +58.6	97.0	39 47.5 +58.8	97.9	39 38.8 +59.1	98.7	38				
18	41 41.9 +55.2	87.8	41 43.6 +55.8	89.0	41 44.3 +56.4	90.1	41 40.8 +57.2	91.0	41 02.1 +58.3	96.2	40 55.2 +58.6	97.0	39 55.2 +58.6	97.0	39 47.5 +58.8	97.9	39	45 59.2 +55.9	86.0	45 57.0 +56.3	87.3	45 51.1 +56.7	88.0	45 43.9 +57.3	89.7	45 33.8 +58.5	90.0	45 20.1 +58.7	96.6	45 12.3 +59.1	97.6	44				
19	46 55.1 +55.8	89.5	46 55.1 +56.3	90.5	46 54.0 +56.8	91.6	46 51.7 +57.3	92.7	46 48.3 +57.8	93.7	46 39.7 +58.1	94.8	46 38.3 +58.5	95.9	46 31.6 +58.8	96.9	45	47 50.9 +55.6	88.9	47 50.0 +56.2	90.0	47 42.0 +56.7	92.2	47 46.1 +57.6	93.3	47 42.0 +58.1	94.4	47 36.8 +58.4	95.5	47 30.4 +58.8	96.6	46				
20	48 46.5 +55.4	88.4	48 47.6 +56.0	89.5	48 47.5 +56.6	90.6	48 46.2 +57.1	91.8	48 43.7 +57.6	92.9	48 40.1 +58.0	94.1	48 35.2 +58.4	95.2	48 29.2 +58.7	96.3	47	50 44.6 +55.3	88.4	50 43.6 +56.4	89.0	50 40.8 +57.9	90.6	50 37.0 +58.3	91.6	50 30.9 +58.7	92.6	50 24.0 +58.6	93.7	49 49.5 +59.2	98.9	47				
21	49 41.9 +55.2	87.8	49 43.6 +55.8	89.0	49 44.1 +56.4	90.1	49 43.3 +57.0	91.3	49 41.3 +57.5	92.5	49 38.1 +57.9	93.7	49 33.6 +58.3	94.8	49 27.9 +58.7	96.0	48	50 37.1 +55.1	87.2	50 34.9 +56.3	88.4	50 30.6 +57.8	90.0	50 26.0 +58.6	91.7	50 19.0 +58.3	93.8	50								
22	51 32.2 +54.8	86.5	51 35.1 +55.5	87.8	51 36.8 +56.1	89.1	51 37.1 +56.7	90.3	51 36.1 +57.3	91.6	51 33.8 +57.7	92.8	51 30.2 +58.1	94.1	51 25.2 +58.6	95.3	50	52 27.0 +54.6	85.9	52 30.6 +55.3	87.2	52 32.9 +56.0	88.9	52 33.4 +56.8	90.1	52 31.5 +57.6	92.4	52 28.3 +58.1	93.7	52 23.8 +58.5	95.0	51				
23	53 21.6 +54.4	85.2	53 25.9 +55.1	86.5	53 30.4 +56.4	89.2	53 30.5 +56.9	90.6	53 29.1 +57.6	91.9	53 26.4 +58.0	93.3	53 22.3 +58.4	94.6	53 20.7 +58.3	94.2	53	54 16.0 +54.0	84.5	54 21.0 +54.9	85.9	54 24.6 +56.2	87.3	54 27.2 +56.9	88.6	54 21.3 +57.6	89.5	54 15.0 +58.3	90.9	55 22.3 +58.4	94.6	52				
24	55 03.8 +53.5	82.9	56 10.5 +54.3	84.4	56 15.5 +55.1	85.																														

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 75°, 285°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.	
	Hc	d	Z																							
0	3 50.5 -58.1	104.5		3 35.4 -58.3	104.6		3 20.3 -58.6	104.6		3 05.1 -58.8	104.7		2 49.8 -58.9	104.7		2 34.6 -59.2	104.8		2 19.2 -59.3	104.8		2 03.9 -59.5	104.9		0	
1	2 52.4 -58.1	104.8		2 37.1 -58.4	104.8		2 21.7 -58.6	104.9		2 06.3 -58.8	104.9		1 50.9 -59.0	104.9		1 35.4 -59.1	105.0		1 19.9 -59.3	105.0		1 04.4 -59.5	105.0		1	
2	1 54.3 -58.1	105.0		1 38.7 -58.3	105.0		1 23.1 -58.5	105.1		1 07.5 -58.7	105.1		0 51.9 -59.0	105.1		0 36.3 -59.2	105.1		0 20.6 -59.3	105.1		0 04.9 -59.4	105.1		2	
3	0 56.2 -58.1	105.3		0 40.4 -58.4	105.3		0 24.6 -58.6	105.3		0 08.8 -58.8	105.3															
4	0 01.9 +58.1	74.5		0 18.0 +58.3	74.5		0 34.0 +58.6	74.5		0 50.0 +58.8	74.5		1 06.0 +59.0	74.5		1 22.0 +59.2	74.5		1 38.0 +59.3	74.6		1 54.0 +59.4	74.6		4	
5	1 00.0 +58.1	74.2		1 16.3 +58.3	74.3		1 32.6 +58.5	74.3		1 48.8 +58.8	74.3		2 05.0 +59.0	74.3		2 21.2 +59.1	74.4		2 37.3 +59.3	74.4		2 53.4 +59.5	74.5		5	
6	1 58.1 +58.1	74.0		2 14.6 +58.4	74.0		2 31.1 +58.6	74.1		2 47.6 +58.8	74.1		3 04.0 +59.0	74.2		3 20.3 +59.2	74.2		3 36.6 +59.3	74.3		3 52.9 +59.4	74.3		6	
7	2 56.2 +58.1	73.7		3 13.0 +58.3	73.8		3 29.7 +58.5	73.8		3 46.4 +58.7	73.9		4 03.0 +58.9	74.0		4 19.5 +59.1	74.0		4 35.9 +59.3	74.1		4 52.3 +59.5	74.2		7	
8	3 54.3 +58.1	73.5		4 11.3 +58.3	73.6		4 28.2 +58.6	73.6		4 45.1 +58.8	73.7		5 01.9 +59.0	73.8		5 18.6 +59.2	73.9		5 35.2 +59.4	74.0		5 51.8 +59.4	74.1		8	
9	4 52.4 +58.0	73.2		5 09.6 +58.3	73.3		5 26.8 +58.6	73.4		5 43.9 +58.8	73.5		6 00.9 +58.9	73.6		6 17.8 +59.1	73.7		6 34.6 +59.3	73.8		6 51.2 +59.5	73.9		9	
10	5 50.4 +58.1	73.0		6 07.9 +58.4	73.1		6 25.4 +58.5	73.2		6 42.7 +58.7	73.3		6 59.8 +59.0	73.4		7 16.9 +59.1	73.5		7 33.9 +59.2	73.7		7 50.7 +59.4	73.8		10	
11	6 48.5 +58.1	72.7		7 06.3 +58.3	72.8		7 23.9 +58.5	73.0		7 41.4 +58.8	73.1		7 58.8 +58.9	73.2		8 16.0 +59.2	73.4		8 33.1 +59.3	73.5		8 50.1 +59.5	73.7		11	
12	7 46.6 +58.0	72.5		8 04.6 +58.3	72.6		8 22.4 +58.6	72.7		8 40.2 +58.7	72.9		8 57.7 +59.0	73.0		9 15.2 +59.1	73.2		9 32.4 +59.3	73.3		9 49.6 +59.4	73.5		12	
13	8 44.6 +58.1	72.2		9 02.9 +58.3	72.4		9 21.0 +58.5	72.5		9 38.9 +58.7	72.7		9 56.7 +58.9	72.8		10 14.3 +59.1	73.0		10 31.7 +59.3	73.2		10 49.0 +59.4	73.4		13	
14	9 42.7 +58.0	72.0		10 01.2 +58.2	72.1		10 19.5 +58.5	72.3		10 37.6 +58.8	72.5		10 55.6 +59.0	72.7		11 13.4 +59.1	72.8		11 31.0 +59.3	73.0		11 48.4 +59.5	73.2		14	
15	10 40.7 +58.0	71.7		10 59.4 +58.3	71.9		11 18.0 +58.5	72.1		11 36.4 +58.7	72.3		11 54.6 +58.9	72.5		12 12.5 +59.1	72.7		12 30.3 +59.3	72.9		12 47.9 +59.4	73.1		15	
16	11 38.7 +58.0	71.4		11 57.7 +58.3	71.6		12 16.5 +58.5	71.8		12 35.1 +58.7	72.1		12 53.5 +58.9	72.3		13 11.6 +59.1	72.5		13 29.6 +59.2	72.7		13 47.3 +59.4	73.0		16	
17	12 36.7 +58.0	71.2		12 56.0 +58.2	71.4		13 15.0 +58.5	71.6		13 33.8 +58.7	71.8		13 52.4 +58.9	72.1		14 10.7 +59.1	72.3		14 28.8 +59.3	72.6		14 46.7 +59.4	72.8		17	
18	13 34.7 +58.0	70.9		13 54.2 +58.2	71.2		14 13.5 +58.4	71.4		14 32.5 +58.7	71.6		14 51.3 +58.9	71.9		15 09.8 +59.1	72.1		15 28.1 +59.3	72.4		15 46.1 +59.4	72.7		18	
19	14 32.7 +57.9	70.7		14 52.4 +58.3	70.9		15 11.9 +58.5	71.2		15 31.2 +58.7	71.4		15 50.2 +58.9	71.7		16 08.9 +59.1	72.0		16 27.4 +59.2	72.2		16 45.5 +59.4	72.5		19	
20	15 30.6 +58.0	70.4		15 50.7 +58.1	70.7		16 10.4 +58.4	70.9		16 29.9 +58.6	71.2		16 49.1 +58.8	71.5		17 08.0 +59.0	71.8		17 26.6 +59.2	72.1		17 44.9 +59.4	72.4		20	
21	16 28.6 +57.9	70.1		16 48.8 +58.2	70.4		17 08.8 +58.5	70.7		17 28.5 +58.7	71.0		17 47.9 +58.9	71.3		18 07.0 +59.1	71.6		18 25.8 +59.3	71.9		18 44.3 +59.4	72.2		21	
22	17 26.5 +57.9	69.8		17 47.0 +58.2	70.1		18 07.3 +58.4	70.4		18 27.2 +58.6	70.8		18 46.8 +58.8	71.1		19 06.1 +59.0	71.4		19 25.1 +59.2	71.7		19 43.7 +59.4	72.1		22	
23	18 24.4 +57.9	69.6		18 45.2 +58.1	69.9		19 05.7 +58.3	70.2		19 25.8 +58.6	70.5		19 45.6 +58.9	70.9		20 05.1 +59.1	71.2		20 24.3 +59.2	71.6		20 43.1 +59.4	71.9		23	
24	19 22.3 +57.8	69.3		19 43.3 +58.1	69.6		20 04.0 +58.4	70.0		20 24.4 +58.6	70.3		20 44.5 +58.8	70.7		21 04.2 +59.0	71.0		21 23.5 +59.2	71.4		21 42.5 +59.3	71.8		24	
25	20 20.1 +57.8	69.0		20 41.4 +58.1	69.4		21 02.4 +58.3	69.7		21 23.0 +58.6	70.1		21 43.3 +58.8	70.4		22 03.2 +59.0	70.8		22 22.7 +59.2	71.2		22 41.8 +59.4	71.6		25	
26	21 17.9 +57.8	68.7		21 39.5 +58.1	69.1		22 00.7 +58.4	69.5		22 21.6 +58.6	69.8		22 42.1 +58.8	70.2		23 02.2 +59.0	70.6		23 21.9 +59.2	71.0		23 41.2 +59.3	71.4		26	
27	22 15.7 +57.8	68.4		22 37.6 +58.0	68.8		22 59.1 +58.3	69.2		23 20.2 +58.5	69.6		23 40.9 +58.7	70.0		24 01.2 +58.9	70.4		24 21.1 +59.1	70.9		24 40.5 +59.4	71.3		27	
28	23 13.4 +57.8	68.1		23 35.6 +58.0	68.5		23 57.4 +58.2	68.9		24 18.7 +58.5	69.4		24 39.6 +58.8	69.8		25 00.1 +59.0	70.2		25 20.2 +59.2	70.7		25 39.9 +59.3	71.1		28	
29	24 11.2 +57.7	67.8		24 33.6 +58.0	68.3		24 55.6 +58.3	68.7		25 17.2 +58.5	69.1		25 38.4 +58.7	69.6		25 59.1 +58.9	70.0		26 19.4 +59.1	70.5		26 39.2 +59.3	71.0		29	
30	25 08.9 +57.6	67.5		25 31.6 +57.9	68.0		25 53.9 +58.2	68.4		26 15.7 +58.5	68.9		26 37.1 +58.7	69.3		26 58.0 +59.0	69.8		27 18.5 +59.1	70.3		27 38.5 +59.3	70.8		30	
31	26 06.5 +57.6	67.2		26 29.5 +57.9	67.7		26 52.1 +58.1	68.1		27 14.2 +58.4	68.6		27 35.8 +58.7	69.1		27 57.0 +58.9	69.6		28 17.6 +59.1	70.1		28 37.8 +59.3	70.6		31	
32	27 04.1 +57.6	66.9		27 27.4 +57.9	67.4		27 50.2 +58.2	67.9		28 12.6 +58.4	68.4		28 34.5 +58.6	68.9		29 16.7 +59.1	69.9		29 37.1 +59.3	70.4		32			32	
33	28 01.7 +57.5	66.6		28 25.3 +57.8	67.1		28 48.4 +58.1	67.6		29 11.0 +58.4	68.1		29 33.1 +58.6	68.6		29 54.7 +58.9	69.2		30 15.8 +59.1	69.7		30 36.4 +59.2	70.3		33	
34	28 59.2 +57.5	66.3		29 23.1 +57.8	66.8		29 46.5 +58.1	67.3		30 09.4 +58.3	67.8		30 31.7 +58.6	68.4		30 53.6 +58.8	68.9		31 14.9 +59.0	69.5		31 35.6 +59.2	70.1		34	
35	29 56.7 +57.4	65.9		30 20.9 +57.7	66.5		30 44.6 +58.0	67.0		31 07.7 +58.3	67.6		31 30.3 +58.6	68.1		31 52.4 +58.8	68.7		32 13.9 +59.0	69.3		32 34.8 +59.3	69.9		35	
36	30 54.1 +57.4	65.6		31 18.6 +57.7	66.2		31 42.6 +58.0	66.7		32 06.0 +58.3	67.3		32 28.9 +58.5	67.9		32 51.2 +58.8	68.5		33 12.9 +59.0	69.1		33 34.1 +59.2	69.7		36	
37	31 51.5 +57.3	65.3		32 16.3 +57.6	65.8		32 40.6 +57.9	66.4		33 04.3 +58.2	67.0		33 27.4 +58.5	67.6		33 50.0 +58.7	68.2		34 11.9 +59.0	68.9		34 33.3 +59.2	69.5		37	
38	32 48.8 +57.2	64.9		33 13.9 +57.6	65.5		33 38.5 +57.9	66.1		34 02.5 +5																

76°, 284° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
0	3 35.4 +58.1	103.5	3 21.3 +58.3	103.6	3 07.2 +58.5	103.7	2 53.0 +58.7	103.7	2 38.7 +59.0	103.8	2 24.5 +59.1	103.8	2 10.1 +59.3	103.8	1 55.8 +59.4	103.9	0	5 53.0 +59.4	103.2	5 53.0 +59.4	103.2	5 53.0 +59.4	103.2	5	
1	4 33.5 +58.0	103.3	4 19.6 +58.3	103.4	4 05.7 +58.6	103.4	3 51.7 +58.8	103.5	3 37.7 +59.0	103.6	3 23.6 +59.1	103.6	3 09.4 +59.3	103.7	2 55.2 +59.5	103.7	1	5 54.7 +59.4	103.6	5 54.7 +59.4	103.6	5 54.7 +59.4	103.6	2	
2	5 31.5 +58.1	103.0	5 17.9 +58.3	103.1	5 04.3 +58.5	103.2	4 50.5 +58.8	103.3	4 36.7 +58.9	103.4	4 22.7 +59.2	103.5	4 08.7 +59.3	103.5	3 54.7 +59.4	103.6	2	5 54.7 +59.4	103.6	5 54.7 +59.4	103.6	5 54.7 +59.4	103.6	3	
3	6 29.6 +58.0	102.8	6 16.2 +58.3	102.9	6 02.8 +58.5	103.0	5 49.3 +58.7	103.1	5 35.6 +59.0	103.2	5 21.9 +59.1	103.3	5 08.0 +59.3	103.4	4 54.1 +59.5	103.5	3	5 54.1 +59.5	103.5	5 54.1 +59.5	103.5	5 54.1 +59.5	103.5	4	
4	7 27.6 +58.1	102.5	7 14.5 +58.3	102.7	7 01.3 +58.6	102.8	6 48.0 +58.8	102.9	6 34.6 +58.9	103.0	6 21.0 +59.1	103.1	6 07.3 +59.3	103.2	5 53.6 +59.4	103.3	4								
5	8 25.7 +58.0	102.3	8 12.8 +58.3	102.4	7 59.9 +58.5	102.6	7 46.8 +58.7	102.7	7 33.5 +59.0	102.8	7 20.1 +59.2	102.9	7 06.6 +59.3	103.1	6 53.0 +59.4	103.2	5								
6	9 23.7 +58.0	102.0	9 11.1 +58.3	102.2	8 58.4 +58.5	102.3	8 45.5 +58.7	102.5	8 32.5 +58.9	102.6	8 19.3 +59.1	102.8	8 05.9 +59.3	102.9	7 52.4 +59.5	103.1	6								
7	10 21.7 +58.0	101.8	10 09.4 +58.3	101.9	9 56.9 +58.5	102.1	9 44.2 +58.8	102.3	9 31.4 +58.9	102.4	9 18.4 +59.1	102.6	9 05.2 +59.3	102.8	8 51.9 +59.4	102.9	7								
8	11 19.7 +58.0	101.5	11 07.7 +58.2	101.7	10 55.4 +58.5	101.9	10 43.0 +58.7	102.1	10 30.3 +58.9	102.1	10 17.5 +59.1	102.4	10 04.5 +59.3	102.6	9 51.3 +59.4	102.8	8								
9	12 17.7 +58.0	101.2	12 05.9 +58.3	101.4	11 53.9 +58.5	101.7	11 41.7 +58.7	101.9	11 29.2 +59.0	102.1	11 16.6 +59.1	102.3	11 03.8 +59.3	102.4	10 50.7 +59.5	102.6	9								
10	13 15.7 +57.9	101.0	13 04.2 +58.2	101.2	12 52.4 +58.5	101.4	12 40.4 +58.7	101.6	12 28.2 +58.9	101.9	12 15.7 +59.1	102.1	12 03.1 +59.2	102.3	11 50.2 +59.4	102.5	10								
11	14 13.6 +58.0	100.7	14 02.4 +58.2	100.9	13 50.9 +58.4	101.2	13 39.1 +58.7	101.4	13 27.1 +58.9	101.7	13 14.8 +59.1	101.9	13 02.3 +59.3	102.1	12 49.6 +59.4	102.4	11								
12	15 11.6 +57.9	100.4	15 00.6 +58.2	100.7	14 49.3 +58.5	101.0	14 37.8 +58.6	101.2	14 26.0 +58.9	101.5	14 13.9 +59.1	101.7	14 01.6 +59.2	102.0	13 49.0 +59.4	102.2	12								
13	16 09.5 +57.9	100.2	15 58.8 +58.2	100.4	15 47.8 +58.4	100.7	15 36.4 +58.7	101.0	15 24.9 +58.8	101.3	15 13.0 +59.1	101.5	15 00.8 +59.3	101.8	14 48.4 +59.4	102.1	13								
14	17 07.4 +57.9	99.9	16 57.0 +58.1	100.2	16 46.2 +58.4	100.5	16 35.1 +58.7	100.8	16 23.7 +58.9	101.1	16 12.1 +59.1	101.4	16 00.1 +59.2	101.6	15 47.8 +59.4	101.9	14								
15	18 05.3 +57.8	99.6	17 55.1 +58.1	99.9	17 44.6 +58.4	100.2	17 33.8 +58.6	100.6	17 22.6 +58.9	100.9	17 11.1 +59.1	101.2	16 59.3 +59.3	101.5	16 47.2 +59.4	101.8	15								
16	19 03.1 +57.9	99.3	18 53.2 +58.2	99.7	18 43.0 +58.4	100.0	18 32.4 +58.6	100.3	18 21.5 +58.8	100.7	18 10.2 +59.1	101.0	17 58.6 +59.2	101.3	17 46.6 +59.4	101.6	16								
17	20 01.0 +57.8	99.1	19 51.4 +58.0	99.4	19 41.4 +58.3	99.8	19 31.0 +58.6	100.1	19 20.3 +58.8	100.5	19 09.2 +59.1	100.8	18 57.8 +59.2	101.1	18 46.0 +59.4	101.5	17								
18	20 58.8 +57.8	98.8	20 49.4 +58.1	99.1	20 39.7 +58.4	99.5	20 29.6 +58.6	99.9	20 19.1 +58.8	100.3	20 08.3 +59.0	100.6	19 57.0 +59.2	101.0	19 45.4 +59.4	101.3	18								
19	21 56.6 +57.7	98.5	21 47.5 +58.0	98.9	21 38.1 +58.3	99.3	21 28.2 +58.6	99.7	21 17.9 +58.8	100.0	21 07.3 +59.0	100.4	20 56.2 +59.2	100.8	20 44.8 +59.4	101.2	19								
20	22 54.3 +57.7	98.2	22 45.5 +58.1	98.6	22 36.4 +58.2	99.0	22 26.8 +58.5	99.4	22 16.7 +58.8	99.8	22 06.3 +59.0	100.2	21 55.4 +59.2	100.6	21 44.2 +59.3	101.0	20								
21	23 52.0 +57.7	97.9	23 43.6 +57.9	98.3	23 34.6 +58.3	98.8	23 25.3 +58.5	99.2	23 15.5 +58.8	99.6	23 05.3 +59.0	100.0	22 54.6 +59.2	100.4	22 43.5 +59.4	100.9	21								
22	24 49.7 +57.6	97.6	24 41.5 +58.0	98.0	24 32.9 +58.2	98.5	24 23.8 +58.5	98.9	24 14.3 +58.7	99.4	24 04.3 +58.9	99.8	23 53.8 +59.1	100.3	23 42.9 +59.3	100.7	22								
23	25 47.3 +57.6	97.3	25 39.5 +57.9	97.7	25 31.1 +58.2	98.2	25 22.3 +58.5	98.7	25 13.0 +58.7	99.2	25 03.2 +59.0	99.6	24 52.9 +59.2	100.1	24 42.2 +59.3	100.5	23								
24	26 44.9 +57.6	97.0	26 37.4 +57.9	97.5	26 29.3 +58.2	98.0	26 20.8 +58.4	98.4	26 11.7 +58.7	98.9	26 02.2 +58.9	99.4	25 52.1 +59.1	99.9	25 41.5 +59.3	100.4	24								
25	27 42.5 +57.5	96.6	27 35.3 +57.8	97.2	27 27.5 +58.2	97.7	27 19.2 +58.5	98.2	27 10.4 +58.7	98.7	27 01.1 +58.9	99.2	26 51.2 +59.1	99.7	26 40.8 +59.4	100.2	25								
26	28 40.0 +57.5	96.3	28 33.1 +57.8	96.9	28 25.7 +58.1	97.4	28 17.7 +58.3	97.9	28 09.1 +58.6	98.5	28 00.0 +58.8	99.0	27 50.3 +59.1	99.5	27 40.2 +59.2	100.0	26								
27	29 37.5 +57.4	96.0	29 30.9 +57.8	96.8	29 23.8 +58.0	97.1	29 16.0 +58.4	97.7	29 07.7 +58.7	98.2	28 58.9 +58.8	98.8	28 49.4 +59.1	99.3	28 39.4 +59.3	99.9	27								
28	30 34.9 +57.3	95.7	30 28.7 +57.7	96.2	30 21.8 +58.1	96.8	30 14.4 +58.3	97.4	30 06.4 +58.6	98.0	29 57.7 +58.9	98.6	29 48.5 +59.1	99.1	29 38.7 +59.3	99.7	28								
29	31 32.2 +57.3	95.3	31 26.4 +57.6	95.9	31 19.9 +57.9	96.5	31 12.7 +58.3	97.1	31 05.0 +58.5	97.7	30 56.6 +58.8	98.3	30 47.6 +59.0	98.9	30 38.0 +59.2	99.5	29								
30	32 29.5 +57.3	95.0	32 24.0 +57.6	95.6	32 17.8 +58.0	96.2	32 11.0 +58.3	96.9	32 03.5 +58.6	97.5	31 55.4 +58.8	98.1	31 46.6 +59.1	98.7	31 37.2 +59.3	99.3	30								
31	33 26.8 +57.2	94.6	33 21.6 +57.6	95.3	33 15.8 +57.9	95.9	33 09.3 +58.2	96.5	33 02.1 +58.5	97.2	32 54.2 +58.4	97.9	32 45.7 +59.0	98.5	32 36.5 +59.2	99.1	31								
32	34 24.0 +57.1	94.2	34 19.2 +57.5	94.9	34 13.7 +57.8	95.6	34 07.5 +58.1	96.3	34 00.6 +58.4	96.9	33 53.0 +58.7	97.6	33 44.7 +58.9	98.3	33 35.7 +59.2	98.9	32								
33	35 21.1 +57.0	93.9	35 16.7 +57.4	94.6	35 11.5 +57.8	95.3	35 05.6 +58.2	96.0	34 59.0 +58.5	96.7	34 24.6 +58.7	97.4	34 34.6 +59.0	98.1	34 34.9 +59.2	98.7	33								
34	36 18.1 +57.0	93.5	36 14.1 +57.4	94.2	36 09.3 +57.8	94.9	36 03.8 +58.0	95.7	35 57.5 +58.4	96.4	35 24.0 +58.7	97.1	35 42.6 +58.9	97.8	35 42.3 +58.8	98.5	34								
35	37 15.1 +56.9	93.1	37 11.5 +57.3	93.9	37 07.1 +57.6	94.6	37 01.8 +58.1	95.4	36 55.9 +58.3	96.1	36 49.1 +58.6	96.9	36 41.5 +58.9	97.6	36 33.2 +59.2	98.3	35								
36	38 12.0 +56.8	92.7	38 08.8 +57.2	93.5	38 04.7 +57.7	94.3	37 59.9 +57.9	95.0	37 54.2 +58.3	95.8	37 4														

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 76°, 284°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.				
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z					
0	3	35.4	-58.1	103.5	3	21.3	-58.3	103.6	3	07.2	-58.6	103.7	2	53.0	-58.8	103.7	2	38.7	-58.9	103.8	2	10.1	-59.3	103.8	1	55.8	-59.5	103.9	0
1	2	37.3	-58.1	103.8	2	23.0	-58.3	103.8	2	08.6	-58.5	103.9	1	54.2	-58.7	103.9	1	39.8	-59.0	103.9	1	10.8	-59.3	104.0	0	56.3	-59.4	104.0	1
2	1	39.2	-58.0	104.0	1	24.7	-58.4	104.1	1	10.1	-58.6	104.1	0	55.5	-58.8	104.1	0	40.8	-58.9	104.1	0	11.5	-59.3	104.1	1	03.1	+59.5	75.9	2
3	0	41.2	-58.1	104.3	0	26.3	-58.3	104.3	0	11.5	-58.5	104.3	0	03.3	+58.8	75.7	0	18.1	+59.0	75.7	0	33.0	+59.1	75.7	0	47.8	+59.3	75.7	3
4	0	16.9	+58.1	75.5	0	32.0	+58.3	75.5	0	47.0	+58.6	75.5	1	02.1	+58.7	75.5	1	17.1	+59.0	75.5	1	32.1	+59.1	75.5	1	47.1	+59.3	75.6	4
5	1	15.0	+58.1	75.2	1	30.3	+58.3	75.2	1	45.6	+58.5	75.3	2	00.8	+58.8	75.3	2	16.1	+58.9	75.3	2	31.2	+59.2	75.4	2	46.4	+59.3	75.4	5
6	2	13.1	+58.0	75.0	2	28.6	+58.3	75.0	2	44.1	+58.6	75.0	2	59.6	+58.8	75.1	3	15.0	+59.0	75.1	3	30.4	+59.1	75.2	3	45.7	+59.3	75.3	6
7	3	11.1	+58.1	74.7	3	26.9	+58.4	74.8	3	42.7	+58.5	74.8	3	58.4	+58.7	74.9	4	14.0	+58.9	74.9	4	29.5	+59.2	75.0	4	45.0	+59.3	75.1	7
8	4	09.2	+58.1	74.4	4	25.3	+58.3	74.5	4	41.2	+58.6	74.6	4	57.1	+58.8	74.7	5	12.9	+59.0	74.8	5	28.7	+59.1	74.9	5	44.3	+59.3	75.0	8
9	5	07.3	+58.0	74.2	5	23.6	+58.3	74.3	5	39.8	+58.5	74.4	5	55.9	+58.7	74.5	6	11.9	+58.9	74.6	6	27.8	+59.1	74.7	6	43.6	+59.3	74.8	9
10	6	05.3	+58.1	73.9	6	21.9	+58.3	74.0	6	38.3	+58.5	74.2	6	54.6	+58.8	74.3	7	10.8	+59.0	74.4	7	26.9	+59.1	74.5	7	42.9	+59.3	74.6	10
11	7	03.4	+58.0	73.7	7	20.2	+58.3	73.8	7	36.8	+58.6	73.9	7	53.4	+58.7	74.1	8	09.8	+58.9	74.2	8	26.0	+59.2	74.3	8	42.2	+59.3	74.5	11
12	8	01.4	+58.1	73.4	8	18.5	+58.2	73.6	8	35.4	+58.5	73.7	8	52.1	+58.7	73.9	9	08.7	+59.0	74.0	9	25.2	+59.1	74.2	9	41.5	+59.4	74.5	12
13	8	59.5	+58.0	73.2	9	16.7	+58.3	73.3	9	33.9	+58.5	73.5	9	50.8	+58.8	73.7	10	07.7	+58.9	73.8	10	24.3	+59.1	74.0	10	40.7	+59.3	74.2	13
14	9	57.5	+58.0	72.9	10	15.0	+58.3	73.1	10	32.4	+58.5	73.3	10	49.6	+58.7	73.4	11	06.6	+58.9	73.6	11	23.4	+59.1	73.8	11	56.4	+59.5	74.2	14
15	10	55.5	+58.0	72.7	11	13.3	+58.2	72.8	11	30.9	+58.5	73.0	11	48.3	+58.7	73.2	12	05.5	+58.9	73.4	12	22.5	+59.1	73.6	12	39.3	+59.3	73.9	15
16	11	53.5	+58.0	72.4	12	11.5	+58.3	72.6	12	29.4	+58.4	72.8	12	47.0	+58.7	73.0	13	04.4	+58.9	73.2	13	21.6	+59.1	73.5	13	38.6	+59.2	73.7	16
17	12	51.5	+57.9	72.1	13	09.8	+58.2	72.4	13	27.8	+58.5	72.6	13	45.7	+58.7	72.8	14	03.3	+58.9	73.0	14	20.7	+59.1	73.3	14	37.8	+59.3	73.5	17
18	13	49.4	+58.0	71.9	14	08.0	+58.2	72.1	14	26.3	+58.5	72.3	14	44.4	+58.7	72.6	15	02.2	+58.9	72.8	15	19.8	+59.0	73.1	15	37.1	+59.2	73.4	18
19	14	47.4	+57.9	71.6	15	24.8	+58.4	71.9	15	43.1	+58.6	72.4	16	01.1	+58.9	72.6	16	18.8	+59.1	72.9	16	36.3	+59.3	73.2	16	53.5	+59.4	73.5	19
20	15	45.3	+57.9	71.3	16	04.4	+58.2	71.6	16	23.2	+58.4	71.9	16	41.7	+58.7	72.2	17	00.0	+58.8	72.4	17	17.9	+59.1	72.7	17	35.6	+59.2	73.0	20
21	16	43.2	+57.9	71.1	17	02.6	+58.1	71.3	17	21.6	+58.4	71.6	17	40.4	+58.6	71.9	17	58.8	+58.9	72.2	18	17.0	+59.0	72.6	18	34.8	+59.2	72.9	21
22	17	41.1	+57.9	70.8	18	00.7	+58.1	71.1	18	20.0	+58.4	71.4	18	39.0	+58.6	71.7	18	57.7	+58.8	72.0	19	16.0	+59.0	72.4	19	34.0	+59.2	72.7	22
23	18	39.0	+57.8	70.5	18	58.8	+58.2	70.8	19	18.4	+58.4	71.2	19	37.6	+58.6	71.5	19	56.5	+58.8	71.8	20	15.0	+59.0	72.2	20	51.0	+59.4	72.9	23
24	19	36.8	+57.8	70.2	19	57.0	+58.0	70.6	20	16.8	+58.3	70.9	20	36.2	+58.6	71.3	20	55.3	+58.8	71.6	21	14.0	+59.1	72.0	21	32.4	+59.2	72.4	24
25	20	34.6	+57.8	69.9	20	55.0	+58.1	70.3	21	15.1	+58.3	70.7	21	34.8	+58.6	71.0	21	54.1	+58.8	71.4	22	13.1	+58.9	71.8	22	31.6	+59.2	72.2	25
26	21	32.4	+57.8	69.6	21	53.1	+58.0	70.0	22	13.4	+58.3	70.4	22	33.4	+58.5	70.8	22	52.9	+58.8	71.2	23	12.0	+59.0	71.6	23	30.8	+59.2	72.0	26
27	22	30.2	+57.7	69.4	22	51.1	+58.0	69.7	23	11.7	+58.3	70.1	23	31.9	+58.5	70.6	23	51.7	+58.7	71.0	24	11.0	+59.0	71.4	24	30.0	+59.1	71.8	27
28	23	27.9	+57.7	69.1	23	49.1	+58.0	69.5	24	10.0	+58.2	69.9	24	30.4	+58.5	70.3	24	50.4	+58.7	70.7	25	10.0	+58.9	71.2	25	29.1	+59.1	71.6	28
29	24	25.6	+57.6	68.8	24	47.1	+58.0	69.2	25	08.2	+58.2	69.6	25	28.9	+58.5	70.1	25	49.1	+58.7	70.5	26	08.9	+58.9	71.0	26	28.2	+59.2	71.4	29
30	25	23.2	+57.7	68.5	25	45.1	+57.9	68.9	26	06.4	+58.2	69.4	26	27.4	+58.4	69.8	26	47.8	+58.7	70.3	27	07.8	+59.0	70.8	27	27.4	+59.1	71.3	30
31	26	20.9	+57.5	68.1	26	43.0	+57.8	68.6	27	04.6	+58.2	69.1	27	25.8	+58.4	69.6	27	46.5	+58.7	70.1	28	06.8	+58.8	70.6	28	26.5	+59.1	71.1	31
32	27	18.4	+57.6	67.8	27	20.8	+57.9	68.3	28	02.8	+58.1	68.8	28	24.2	+58.4	69.3	28	45.2	+58.6	69.8	29	05.6	+58.9	70.3	29	25.6	+59.0	71.4	32
33	28	16.0	+57.5	67.5	28	38.7	+57.8	68.0	29	00.9	+58.1	68.5	29	22.6	+58.4	69.0	29	43.8	+58.6	69.6	30	04.5	+58.8	70.1	30	44.2	+59.3	71.2	33
34	29	13.5	+57.4	67.2	29	36.5	+57.7	67.7	29	59.0	+58.0	68.2	30	21.0	+58.3	68.8	30	42.4	+58.6	69.3	31	03.3	+58.9	69.9	31	23.7	+59.0	70.5	34
35	30	10.9	+57.4	66.8	30	34.2	+57.7	67.4	30	57.0	+58.0	67.9	31	41.0	+58.6	68.5	32	02.2	+58.7	69.7	32	22.7	+59.0	70.2	32	42.7	+59.2	70.8	35
36	31	08.3	+57.3	66.5	31	31.9	+57.7	67.1	31	55.0	+58.0	67.6	32	17.6	+58.2	68.2	32	39.6	+58.5	68.8	33	20.9	+58.8	70.0	33	41.9	+59.2	70.7	36
37	32	05.6	+57.3	66.2	32	29.6	+57.6	66.7	32	53.0	+57.9	67.3	33	15.8	+58.2	67.9	33	38.1	+58.4	68.5	33	59.7	+58.7	69.2	34	20.7	+59.0	70.5	37
38	33	02.9	+57.2	65.8	33	27.2	+57.5	66.4	33	50.9	+5																		

77°, 283° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
0	3 20.3 +58.0	102.6	3 07.2 +58.3	102.6	2 54.0 +58.6	102.7	2 40.8 +58.8	102.7	2 27.6 +59.0	102.8	2 14.3 +59.2	102.8	2 01.0 +59.3	102.8	1 47.6 +59.5	102.9	0	0	,	,	,	,	,	,	0
1	4 18.3 +58.1	102.3	4 05.5 +58.3	102.4	3 52.6 +58.5	102.5	3 39.6 +58.7	102.5	3 26.6 +58.9	102.6	3 13.5 +59.1	102.6	3 00.3 +59.3	102.7	2 47.1 +59.4	102.7	1	0	,	,	,	,	,	,	0
2	5 16.4 +58.0	102.1	5 03.8 +58.3	102.2	4 51.1 +58.5	102.2	4 38.3 +58.8	102.3	4 25.5 +58.9	102.4	4 12.6 +59.1	102.5	3 59.6 +59.3	102.5	3 46.5 +59.5	102.6	2	0	,	,	,	,	,	,	0
3	6 14.4 +58.0	101.8	6 02.1 +58.3	101.9	5 49.6 +58.6	102.0	5 37.1 +58.7	102.1	5 24.4 +59.0	102.2	5 11.7 +59.1	102.3	4 58.9 +59.3	102.4	4 46.0 +59.4	102.5	3	0	,	,	,	,	,	,	0
4	7 12.4 +58.1	101.6	7 00.4 +58.2	101.7	6 48.2 +58.5	101.8	6 35.8 +58.8	101.9	6 23.4 +58.9	102.0	6 10.8 +59.2	102.1	5 58.2 +59.3	102.2	5 45.4 +59.5	102.3	4	0	,	,	,	,	,	,	0
5	8 10.5 +58.0	101.3	7 58.6 +58.3	101.4	7 46.7 +58.5	101.6	7 34.6 +58.7	101.7	7 22.3 +59.0	101.8	7 10.0 +59.1	102.0	6 57.5 +59.3	102.1	6 44.9 +59.4	102.2	5	0	,	,	,	,	,	,	0
6	9 08.5 +58.0	101.0	8 56.9 +58.3	101.2	8 45.2 +58.5	101.3	8 33.3 +58.7	101.5	8 21.3 +58.9	101.6	8 09.1 +59.1	101.8	7 56.8 +59.2	101.9	7 44.3 +59.4	102.1	6	0	,	,	,	,	,	,	0
7	10 06.5 +58.0	100.8	9 55.2 +58.2	101.0	9 43.7 +58.5	101.1	9 32.0 +58.7	101.3	9 20.2 +58.9	101.5	9 08.2 +59.1	101.6	8 56.0 +59.3	101.8	8 43.7 +59.5	101.9	7	0	,	,	,	,	,	,	0
8	11 04.5 +58.0	100.5	10 53.4 +58.3	100.7	10 42.2 +58.5	100.9	10 30.7 +58.7	101.1	10 19.1 +58.9	101.3	10 07.3 +59.1	101.4	9 55.3 +59.3	101.6	9 43.2 +59.4	101.8	8	0	,	,	,	,	,	,	0
9	12 02.5 +57.9	100.3	11 51.7 +58.2	100.5	11 40.7 +58.4	100.7	11 29.4 +58.7	100.9	11 18.0 +58.9	101.1	11 06.4 +59.1	101.3	10 54.6 +59.3	101.5	10 42.6 +59.4	101.6	9	0	,	,	,	,	,	,	0
10	13 00.4 +58.0	100.0	12 49.9 +58.2	100.2	12 39.1 +58.5	100.4	12 28.1 +58.7	100.7	12 16.9 +58.9	100.9	12 05.5 +59.1	101.1	11 53.9 +59.2	101.3	11 42.0 +59.4	101.5	10	0	,	,	,	,	,	,	0
11	13 58.4 +57.9	99.7	13 48.1 +58.2	100.0	13 37.6 +58.4	100.2	13 26.8 +58.7	100.4	13 15.8 +58.9	100.7	13 04.6 +59.1	100.9	12 53.1 +59.3	101.1	12 41.4 +59.4	101.4	11	0	,	,	,	,	,	,	0
12	14 56.3 +57.9	99.5	14 46.3 +58.2	99.7	14 36.0 +58.5	100.0	14 25.5 +58.7	100.2	14 14.7 +58.9	100.5	14 03.7 +59.1	100.7	13 52.4 +59.2	101.0	13 40.8 +59.5	101.2	12	0	,	,	,	,	,	,	0
13	15 54.2 +57.9	99.2	15 44.5 +58.1	99.5	15 34.5 +58.4	99.7	15 24.2 +58.6	100.0	15 13.6 +58.9	100.3	15 02.8 +59.0	100.5	14 51.6 +59.3	100.8	14 40.3 +59.4	101.1	13	0	,	,	,	,	,	,	0
14	16 52.1 +57.9	98.9	16 42.6 +58.2	99.2	16 32.9 +58.4	99.5	16 22.8 +58.7	99.8	16 12.5 +58.8	100.1	16 01.8 +59.1	100.4	15 50.9 +59.2	100.6	15 39.7 +59.4	100.9	14	0	,	,	,	,	,	,	0
15	17 50.0 +57.8	98.6	17 40.8 +58.1	98.9	17 31.3 +58.4	99.3	17 21.5 +58.6	99.6	17 11.3 +58.9	99.9	17 00.9 +59.0	100.2	16 50.1 +59.3	100.5	16 39.1 +59.4	100.8	15	0	,	,	,	,	,	,	0
16	18 47.8 +57.8	98.4	18 38.9 +58.1	98.7	18 29.7 +58.3	99.0	18 20.1 +58.6	99.3	18 10.2 +58.8	99.7	17 59.9 +59.1	100.0	17 49.4 +59.2	100.3	17 38.5 +59.3	100.6	16	0	,	,	,	,	,	,	0
17	19 45.6 +57.8	98.1	19 37.0 +58.1	98.4	19 28.0 +58.4	98.8	19 18.7 +58.6	99.1	19 09.0 +58.8	99.5	18 59.0 +59.0	99.8	18 48.6 +59.2	100.1	18 37.8 +59.4	100.5	17	0	,	,	,	,	,	,	0
18	20 43.4 +57.8	97.8	20 35.1 +58.0	98.2	20 26.4 +58.3	98.5	20 17.3 +58.6	98.9	20 07.8 +58.8	99.3	19 58.0 +59.0	99.6	19 47.8 +59.2	100.0	19 37.2 +59.4	100.3	18	0	,	,	,	,	,	,	0
19	21 41.2 +57.7	97.5	21 33.1 +58.1	97.9	21 24.7 +58.3	98.3	21 15.9 +58.5	98.7	21 06.6 +58.8	99.0	20 57.0 +59.0	99.4	20 47.0 +59.2	99.8	20 36.6 +59.3	100.2	19	0	,	,	,	,	,	,	0
20	22 38.9 +57.7	97.2	22 31.2 +58.0	97.6	22 23.0 +58.3	98.0	22 14.4 +58.6	98.4	22 05.4 +58.8	98.8	21 56.0 +59.0	99.2	21 46.2 +59.2	99.6	21 35.9 +59.4	100.0	20	0	,	,	,	,	,	,	0
21	23 36.6 +57.7	96.9	23 29.2 +57.9	97.3	23 21.3 +58.2	97.8	23 13.0 +58.5	98.2	23 04.2 +58.8	98.6	22 55.0 +59.0	99.0	22 45.4 +59.1	99.4	22 35.3 +59.3	99.9	21	0	,	,	,	,	,	,	0
22	24 34.3 +57.6	96.6	24 27.1 +58.0	97.1	24 19.5 +58.3	97.5	24 11.5 +58.5	97.9	24 03.0 +58.7	98.4	23 54.0 +58.9	98.8	23 44.5 +59.2	99.3	23 34.6 +59.4	99.7	22	0	,	,	,	,	,	,	0
23	25 31.9 +57.6	96.3	25 25.1 +57.9	96.8	25 17.8 +58.2	97.2	25 10.0 +58.4	97.7	25 01.7 +58.7	98.2	24 52.9 +59.0	98.6	24 43.7 +59.1	99.1	24 34.0 +59.3	99.5	23	0	,	,	,	,	,	,	0
24	26 29.5 +57.5	96.0	26 23.0 +57.9	97.5	26 16.0 +58.1	97.0	26 08.4 +58.5	97.5	26 00.4 +58.7	97.9	25 51.9 +58.9	98.4	25 42.8 +59.2	98.9	25 33.3 +59.3	99.4	24	0	,	,	,	,	,	,	0
25	27 27.0 +57.5	95.7	27 20.9 +57.8	96.2	27 14.1 +58.2	96.7	27 06.9 +58.4	97.2	26 59.1 +58.7	97.7	26 50.8 +58.9	98.2	26 42.0 +59.1	98.7	26 32.6 +59.3	99.2	25	0	,	,	,	,	,	,	0
26	28 24.5 +57.5	95.3	28 18.7 +57.8	95.9	28 12.3 +58.1	96.4	28 05.3 +58.4	96.9	27 57.8 +58.6	97.5	27 49.7 +58.9	98.0	27 41.1 +59.1	98.5	27 31.9 +59.3	99.0	26	0	,	,	,	,	,	,	0
27	29 22.0 +57.4	95.0	29 16.5 +57.7	95.6	29 10.4 +58.0	96.1	29 03.7 +58.3	96.7	28 56.4 +58.6	97.2	28 48.6 +58.8	97.8	28 40.2 +59.0	98.3	28 31.2 +59.3	98.9	27	0	,	,	,	,	,	,	0
28	30 19.4 +57.4	94.7	30 14.2 +57.7	95.3	30 08.4 +58.0	95.8	30 02.0 +58.3	96.4	29 55.0 +58.6	97.0	29 47.4 +58.9	97.6	29 39.2 +59.1	98.1	29 30.5 +59.2	98.7	28	0	,	,	,	,	,	,	0
29	31 16.8 +57.3	94.3	31 11.9 +57.7	94.9	31 06.4 +58.0	95.5	31 00.3 +58.3	96.1	30 53.6 +58.6	96.7	30 46.3 +58.7	97.3	30 38.3 +59.0	97.9	30 29.7 +59.3	98.5	29	0	,	,	,	,	,	,	0
30	32 14.1 +57.2	94.0	32 09.6 +57.6	94.6	32 04.4 +58.0	95.2	31 58.6 +58.3	95.9	31 52.2 +58.5	96.5	31 45.1 +58.8	97.1	31 37.3 +59.1	97.7	31 29.0 +59.2	98.3	30	0	,	,	,	,	,	,	0
31	33 11.3 +57.2	93.6	33 07.2 +57.5	94.3	33 02.4 +57.8	94.9	32 56.9 +58.2	95.6	32 50.7 +58.5	96.2	32 43.9 +58.7	96.9	32 36.4 +59.0	97.5	32 28.2 +59.2	98.1	31	0	,	,	,	,	,	,	0
32	34 08.5 +57.1	93.3	34 04.7 +57.5	93.9	34 00.2 +57.9	94.6	33 55.1 +58.1	95.3	33 49.2 +58.5	96.0	33 42.6 +58.8	96.6	33 35.4 +58.9	97.3	33 27.4 +59.2	97.9	32	0	,	,	,	,	,	,	0
33	35 05.6 +57.0	92.9	35 02.2 +57.4	93.6	34 58.1 +57.8	94.3	34 53.2 +58.1	95.0	34 47.7 +58.4	95.7	34 41.4 +58.7	96.4	34 34.3 +59.0	97.1	34 26.6 +59.2	97.7	33	0	,	,	,	,	,	,	0
34	36 59.6 +56.9	92.1	36 57.0 +57.3	92.9	36 53.6 +57.7	93.6	36 49.4 +58.0	94.4	36 44.5 +58.3	95.1	36 38.7 +58.7	95.9	36 32.2 +58.9	96.6	36 24.9 +59.2	97.3	35	0	,	,	,	,	,	,	0
35	37 56.5 +56.8	91.7	37 54.3 +57.2	92.5	37 51.3 +57.6	93.3	37 47.4 +58.0	94.0	37 42.8 +58.3	94.8	37 37.4 +58.6	95.6	37 31.1 +58.9	96.4	37 24.1 +59.1	97.1	36	0	,	,	,	,	,	,	0
36	38 53.3 +56.7	91.3	38 51.5 +57.2	92.1	38 48.9 +57.5	92.7	38 45.4 +57.9	93.7	38 41.1 +58.2	94.5	38 36.0 +58.5	95.3	38 30.0 +58.8	96.1	38 23.2 +59.1	96.9	37	0	,	,	,	,			

LATITUDE CONTRARY NAME TO DECLINATION **L.H.A. 77°, 283°**

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.			
	Hc	d	Z																									
0	3 20.3 -58.1	102.6		3 07.2 -58.3	102.6		2 54.0 -58.5	102.7		2 40.8 -58.7	102.7		2 27.6 -58.9	102.8		2 14.3 -59.1	102.8		2 01.0 -59.3	102.8		1 47.6 -59.4	102.9		0 48.2 -59.4	103.0	0	
1	2 22.2 -58.0	102.8		2 08.9 -58.3	102.9		1 55.5 -58.5	102.9		1 42.1 -58.8	102.9		1 28.7 -59.0	103.0		1 15.2 -59.1	103.0		1 01.7 -59.3	103.0		0 11.2 +59.5	76.9	2	1 10.7 +59.4	76.7	3	
2	1 24.2 -58.1	103.1		1 10.6 -58.3	103.1		0 57.0 -58.6	103.1		0 43.3 -58.7	103.1		0 29.7 -59.0	103.1		0 16.1 -59.2	103.1		0 02.4 -59.3	103.2		2 10.1 +59.5	76.6	4				
3	0 26.1 -58.1	103.3		0 12.3 -58.4	103.3																							
4	0 32.0 +58.0	76.4		0 46.1 +58.3	76.4		1 00.1 +58.6	76.4		1 14.2 +58.7	76.5		1 28.2 +59.0	76.5		1 42.2 +59.2	76.5		1 56.2 +59.3	76.5								
5	1 30.0 +58.1	76.2		1 44.4 +58.3	76.2		1 58.7 +58.5	76.2		2 12.9 +58.8	76.3		2 27.2 +58.9	76.3		2 41.4 +59.1	76.3		2 55.5 +59.3	76.4		3 09.6 +59.4	76.4	5				
6	2 28.1 +58.0	75.9		2 42.7 +58.3	76.0		2 57.2 +58.5	76.0		3 11.7 +58.7	76.1		3 26.1 +59.0	76.1		3 40.5 +59.1	76.2		3 54.8 +59.3	76.2		4 09.0 +59.5	76.3	6				
7	3 26.1 +58.1	75.7		3 41.0 +58.3	75.7		3 55.7 +58.6	75.8		4 10.4 +58.8	75.9		4 25.1 +58.9	75.9		4 39.6 +59.1	76.0		4 54.1 +59.3	76.1		5 08.5 +59.4	76.2	7				
8	4 24.2 +58.0	75.4		4 39.3 +58.3	75.5		4 54.3 +58.5	75.6		5 09.2 +58.7	75.7		5 24.0 +59.0	75.7		5 38.7 +59.2	75.8		5 53.4 +59.3	75.9		6 07.9 +59.4	76.0	8				
9	5 22.2 +58.1	75.2		5 37.6 +58.3	75.2		5 52.8 +58.5	75.3		6 07.9 +58.8	75.4		6 23.0 +58.9	75.6		6 37.9 +59.1	75.7		6 52.7 +59.3	75.8		7 07.3 +59.5	75.9	9				
10	6 20.3 +58.0	74.9		6 35.9 +58.2	75.0		6 51.3 +58.5	75.1		7 06.7 +58.7	75.2		7 21.9 +58.9	75.4		7 37.0 +59.1	75.5		7 52.0 +59.2	75.6		8 06.8 +59.4	75.8	10				
11	7 18.3 +58.0	74.6		7 34.1 +58.3	74.8		7 49.8 +58.5	74.9		8 05.4 +58.7	75.0		8 20.8 +59.0	75.2		8 36.1 +59.1	75.3		8 51.2 +59.3	75.5		9 06.2 +59.4	75.6	11				
12	8 16.3 +58.1	74.4		8 32.4 +58.3	74.5		8 48.3 +58.5	74.7		9 04.1 +58.7	74.8		9 19.8 +58.9	75.0		9 35.2 +59.1	75.1		9 50.5 +59.3	75.3		10 05.6 +59.5	75.5	12				
13	9 14.4 +58.0	74.1		9 30.7 +58.2	74.3		9 46.8 +58.5	74.5		10 02.8 +58.8	74.6		10 18.7 +58.9	74.8		10 34.3 +59.1	75.0		10 49.8 +59.3	75.2		11 05.1 +59.4	75.3	13				
14	10 12.4 +57.9	73.9		10 28.9 +58.3	74.0		10 45.3 +58.5	74.2		11 01.6 +58.7	74.4		11 17.6 +58.9	74.6		11 33.4 +59.1	74.8		11 49.1 +59.2	75.0		12 04.5 +59.4	75.2	14				
15	11 10.3 +58.0	73.6		11 27.2 +58.2	73.8		11 43.8 +58.5	74.0		12 00.3 +58.7	74.2		12 16.5 +58.9	74.4		12 32.5 +59.1	74.6		12 48.3 +59.3	74.8		13 03.9 +59.4	75.1	15				
16	12 08.3 +58.0	73.3		12 25.4 +58.2	73.6		12 42.3 +58.5	73.8		12 59.0 +58.6	74.0		13 15.4 +58.9	74.2		13 31.6 +59.1	74.4		13 47.6 +59.2	74.7		14 03.3 +59.4	74.9	16				
17	13 06.3 +57.9	73.1		13 23.6 +58.2	73.3		13 40.8 +58.4	73.5		13 57.6 +58.7	73.8		14 14.3 +58.9	74.0		14 30.7 +59.1	74.3		14 46.8 +59.3	74.5		15 02.7 +59.4	74.8	17				
18	14 04.2 +58.0	72.8		14 21.8 +58.2	73.1		14 39.2 +58.4	73.3		14 56.3 +58.7	73.6		15 29.8 +59.0	74.1		15 46.1 +59.2	74.3		16 02.1 +59.4	74.6		18 04.5 +59.4	75.2	20				
19	15 02.2 +57.9	72.5		15 20.0 +58.2	72.8		15 37.6 +58.5	73.1		15 55.0 +58.6	73.3		16 12.0 +58.9	73.6		16 28.8 +59.1	73.9		16 45.3 +59.3	74.2		17 01.5 +59.4	74.5	19				
20	16 00.1 +57.9	72.3		16 18.2 +58.2	72.5		16 36.1 +58.4	72.8		16 53.6 +58.7	73.1		17 10.9 +58.8	73.4		17 27.9 +59.0	73.7		17 44.6 +59.2	74.0		18 00.9 +59.4	74.3	20				
21	16 58.0 +57.8	72.0		17 16.4 +58.1	72.3		17 34.5 +58.3	72.6		17 52.3 +58.6	72.9		18 09.7 +58.9	73.2		18 26.9 +59.1	73.5		18 43.8 +59.2	73.8		19 00.3 +59.4	74.2	21				
22	17 55.8 +57.9	71.7		18 14.5 +58.1	72.0		18 32.8 +58.4	72.3		18 50.9 +58.6	72.7		19 08.6 +58.8	73.0		19 26.0 +59.0	73.3		19 43.0 +59.2	73.7		19 59.7 +59.4	74.0	22				
23	18 53.7 +57.8	71.4		19 12.6 +58.1	71.8		19 31.2 +58.3	72.1		19 49.5 +58.6	72.4		20 07.4 +58.8	72.8		20 25.0 +59.0	73.1		20 42.2 +59.2	73.5		20 59.1 +59.3	73.9	23				
24	19 51.5 +57.8	71.2		20 10.7 +58.0	71.5		20 29.5 +58.4	71.9		20 48.1 +58.5	72.2		21 06.2 +58.8	72.6		21 24.0 +59.0	72.9		21 41.4 +59.2	73.3		21 58.4 +59.4	73.7	24				
25	20 49.3 +57.7	70.9		21 08.7 +58.1	71.2		21 27.9 +58.3	71.6		21 46.6 +58.6	72.0		22 05.0 +58.8	72.4		22 23.0 +59.0	72.8		22 40.6 +59.1	73.1		22 57.8 +59.3	73.6	25				
26	21 47.0 +57.8	70.6		22 06.8 +58.0	71.0		22 26.2 +58.2	71.3		22 45.2 +58.5	71.7		23 03.8 +58.7	72.1		23 22.0 +58.9	72.6		23 39.7 +59.2	73.0		23 57.1 +59.3	73.4	26				
27	22 44.8 +57.7	70.3		23 04.8 +58.0	70.7		23 24.4 +58.3	71.1		23 43.7 +58.5	71.5		24 02.5 +58.7	71.9		24 20.9 +59.0	72.4		24 38.9 +59.1	72.8		24 56.4 +59.4	73.2	27				
28	23 42.5 +57.6	70.0		24 02.8 +57.9	70.4		24 22.7 +58.2	70.8		24 42.2 +58.5	71.3		25 01.2 +58.8	71.7		25 19.9 +58.9	72.1		25 38.0 +59.2	72.6		25 55.8 +59.3	73.1	28				
29	24 40.1 +57.6	69.7		25 00.7 +58.0	70.1		25 20.9 +58.2	70.6		25 40.7 +58.4	71.0		26 00.0 +58.7	71.5		26 18.8 +58.9	71.9		26 37.2 +59.1	72.4		26 55.1 +59.3	72.9	29				
30	25 37.7 +57.6	69.4		25 58.7 +57.8	69.8		26 19.1 +58.2	70.3		26 39.1 +58.4	70.8		26 58.7 +58.6	71.2		27 17.7 +58.9	71.7		27 36.3 +59.1	72.2		27 54.4 +59.2	72.7	30				
31	26 35.3 +57.6	69.1		26 56.5 +57.8	69.5		27 17.3 +58.1	70.0		27 37.5 +58.4	70.5		27 57.3 +58.7	71.0		28 16.6 +58.9	71.5		28 35.4 +59.1	72.0		28 53.6 +59.3	72.5	31				
32	27 32.9 +57.5	68.7		27 54.4 +57.8	69.2		28 15.4 +58.1	69.7		28 35.9 +58.4	70.2		28 56.0 +58.6	70.8		29 15.5 +58.8	71.3		29 34.5 +59.0	71.8		29 52.9 +59.3	72.4	32				
33	28 30.4 +57.4	68.4		28 52.2 +57.7	68.9		29 13.5 +58.1	69.5		29 34.3 +58.3	70.0		29 54.6 +58.6	70.5		30 14.3 +58.9	71.1		30 33.5 +59.1	71.6		30 52.2 +59.2	72.2	33				
34	29 27.8 +57.4	68.1		29 49.9 +57.8	68.6		30 11.6 +58.0	69.2		30 32.6 +58.3	69.7		30 53.2 +58.5	70.3		31 13.2 +58.8	70.8		31 32.6 +59.0	71.4		31 51.4 +59.2	72.0	34				
35	30 25.2 +57.4	67.8		30 47.7 +57.6	68.3		31 09.6 +58.0	68.9		31 30.9 +58.3	69.4		31 51.7 +58.6	70.0		32 12.0 +58.7	70.6		32 31.6 +59.0	71.2		32 50.6 +59.2	71.8	35				
36	31 22.6 +57.3	67.4		31 45.3 +57.7	68.0		32 07.6 +57.9	68.6		32 29.2 +58.2	69.2		32 50.3 +58.5	69.8		33 10.7 +58.8	70.4		33 30.6 +59.0	71.0		33 49.8 +59.2	71.6	36				
37	32 19.9 +57.2	67.1		32 43.0 +57.5	67.7		33 05.5 +57.9	68.3		33 27.																		

78°, 282° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
0	3 05.1 +58.0	101.6	2 53.0 +58.3	101.7	2 40.8 +58.6	101.7	2 28.7 +58.7	101.7	2 16.4 +59.0	101.8	2 04.1 +59.2	101.8	1 51.8 +59.3	101.9	1 39.5 +59.4	101.9	0	0	0	0	0	0	0	0	
1	4 03.1 +58.1	101.3	3 51.3 +58.3	101.4	3 39.4 +58.5	101.5	3 27.4 +58.7	101.5	3 15.4 +58.9	101.6	3 03.3 +59.1	101.7	2 51.1 +59.3	101.7	2 38.9 +59.5	101.8	1	1	1	1	1	1	1	1	
2	5 01.2 +58.0	101.1	4 49.6 +58.2	101.2	4 37.9 +58.5	101.3	4 26.1 +58.8	101.3	4 14.3 +58.9	101.4	4 02.4 +59.1	101.5	3 50.4 +59.3	101.5	3 38.4 +59.4	101.6	2	2	2	2	2	2	2	2	
3	5 59.2 +58.0	100.8	5 47.8 +58.3	100.9	5 36.4 +58.5	101.0	5 24.9 +58.7	101.1	5 13.2 +59.0	101.2	5 01.5 +59.1	101.3	4 49.7 +59.3	101.4	4 37.8 +59.4	101.5	3	3	3	3	3	3	3	3	
4	6 57.2 +58.0	100.6	6 46.1 +58.3	100.7	6 34.9 +58.5	100.8	6 23.6 +58.7	100.9	6 12.2 +58.9	101.0	6 00.6 +59.2	101.1	5 49.0 +59.3	101.2	5 37.2 +59.5	101.3	4	4	4	4	4	4	4	4	
5	7 55.2 +58.0	100.3	7 44.4 +58.2	100.5	7 33.4 +58.5	100.6	7 22.3 +58.8	100.7	7 11.1 +58.9	100.8	6 59.8 +59.1	101.0	6 48.3 +59.3	101.1	6 36.7 +59.4	101.2	5	5	5	5	5	5	5	5	
6	8 53.2 +58.0	100.1	8 42.6 +58.3	100.2	8 31.9 +58.5	100.4	8 21.1 +58.7	100.5	8 10.0 +59.0	100.7	7 58.9 +59.1	100.8	7 47.6 +59.2	100.9	7 36.1 +59.4	101.1	6	6	6	6	6	6	6	6	
7	9 51.2 +58.0	99.8	9 40.9 +58.2	100.0	9 30.4 +58.5	100.1	9 19.8 +58.7	100.3	9 09.0 +58.9	100.5	8 58.0 +59.1	100.6	8 46.8 +59.3	100.8	8 35.5 +59.5	100.9	7	7	7	7	7	7	7	7	
8	10 49.2 +57.9	99.5	10 39.1 +58.3	99.7	10 28.9 +58.5	99.9	10 18.5 +58.7	100.1	10 07.9 +58.9	100.3	9 57.1 +59.1	100.4	9 46.1 +59.3	100.6	9 35.0 +59.4	100.8	8	8	8	8	8	8	8	8	
9	11 47.1 +58.0	99.3	11 37.4 +58.2	99.5	11 27.4 +58.4	99.7	11 17.2 +58.7	99.9	11 06.8 +59.8	100.1	10 56.2 +59.1	100.3	10 45.4 +59.2	100.5	10 34.4 +59.4	100.6	9	9	9	9	9	9	9	9	
10	12 45.1 +57.9	99.0	12 35.6 +58.2	99.2	12 25.8 +58.5	99.5	12 15.9 +58.6	99.7	12 05.7 +58.9	99.9	11 55.3 +59.1	100.1	11 44.6 +59.3	100.3	11 33.8 +59.4	100.5	10	10	10	10	10	10	10	10	
11	13 43.0 +58.0	98.7	13 33.8 +58.2	99.0	13 24.3 +58.4	99.2	13 14.5 +58.7	99.5	13 04.6 +58.9	99.7	12 54.4 +59.0	99.9	12 43.9 +59.3	100.1	12 33.2 +59.4	100.4	11	11	11	11	11	11	11	11	
12	14 41.0 +57.9	98.5	14 32.0 +58.1	98.7	14 22.7 +58.5	99.0	14 13.2 +58.7	99.2	14 03.5 +58.9	99.5	13 53.4 +59.1	99.7	13 43.2 +59.2	100.0	13 32.6 +59.4	100.2	12	12	12	12	12	12	12	12	
13	15 38.9 +57.8	98.2	15 30.1 +58.2	98.5	15 21.2 +58.4	98.8	15 11.9 +58.6	99.0	15 02.3 +58.9	99.3	14 52.5 +59.1	99.6	14 42.4 +59.2	99.8	14 32.0 +59.4	100.1	13	13	13	13	13	13	13	13	
14	16 36.7 +57.9	97.9	16 28.3 +58.1	98.2	16 19.6 +58.4	98.5	16 10.5 +58.7	98.8	16 01.2 +58.8	99.1	15 51.6 +59.0	99.4	15 41.6 +59.3	99.7	15 31.4 +59.4	99.9	14	14	14	14	14	14	14	14	
15	17 34.6 +57.8	97.7	17 26.4 +58.1	98.0	17 18.0 +58.3	98.3	17 09.2 +58.6	98.6	17 00.0 +58.9	98.9	16 50.6 +59.1	99.2	16 40.9 +59.2	99.5	16 30.8 +59.4	99.8	15	15	15	15	15	15	15	15	
16	18 32.4 +57.8	97.4	18 24.5 +58.1	97.7	18 16.3 +58.4	98.0	18 07.8 +58.6	98.4	18 58.9 +58.8	98.7	17 49.7 +59.0	99.0	17 40.1 +59.2	99.3	17 30.2 +59.4	99.6	16	16	16	16	16	16	16	16	
17	19 30.2 +57.8	97.1	19 22.6 +58.1	97.4	19 14.7 +58.3	97.8	19 06.4 +58.6	98.1	18 57.7 +58.8	98.5	18 48.7 +59.0	98.8	18 39.3 +59.2	99.1	18 29.6 +59.4	99.5	17	17	17	17	17	17	17	17	
18	20 28.0 +57.8	96.8	20 20.7 +58.1	97.2	20 13.0 +58.3	97.5	20 05.0 +58.5	97.9	19 56.5 +58.8	98.3	19 47.7 +59.0	98.6	19 38.5 +59.2	99.0	19 29.0 +59.4	99.3	18	18	18	18	18	18	18	18	
19	21 25.8 +57.7	96.5	21 18.8 +58.0	96.9	21 11.3 +58.3	97.3	21 03.5 +58.6	97.7	20 55.3 +58.8	98.1	20 46.7 +59.0	98.4	20 37.7 +59.2	98.8	20 28.4 +59.3	99.2	19	19	19	19	19	19	19	19	
20	22 23.5 +57.7	96.2	22 16.8 +58.0	96.6	22 09.6 +58.3	97.0	22 02.1 +58.5	97.4	21 54.1 +58.8	97.8	21 45.7 +59.0	98.2	21 36.9 +59.2	98.6	21 27.7 +59.4	99.0	20	20	20	20	20	20	20	20	
21	23 21.2 +57.6	95.9	23 14.8 +57.9	96.4	23 07.9 +58.2	96.8	23 00.6 +58.5	97.2	22 52.9 +58.7	97.6	22 44.7 +59.0	98.0	22 36.1 +59.2	98.4	22 27.1 +59.3	98.9	21	21	21	21	21	21	21	21	
22	24 18.8 +57.7	95.6	24 12.7 +58.0	96.1	24 06.1 +58.3	96.5	23 59.1 +58.5	97.0	23 51.6 +58.7	97.4	23 43.7 +58.9	97.8	23 35.3 +59.1	98.3	23 26.4 +59.3	98.7	22	22	22	22	22	22	22	22	
23	25 16.5 +57.5	95.3	25 10.7 +57.8	95.8	25 04.4 +58.2	96.2	24 57.6 +58.5	96.7	24 50.3 +58.7	97.2	24 42.6 +58.9	97.6	24 34.4 +59.1	98.1	24 25.7 +59.4	98.5	23	23	23	23	23	23	23	23	
24	26 14.0 +57.6	95.0	26 08.5 +57.9	95.5	26 02.6 +58.1	96.0	25 56.1 +58.4	96.5	25 49.0 +58.7	96.9	25 41.5 +59.0	97.4	25 33.5 +59.2	97.9	25 25.1 +59.3	98.4	24	24	24	24	24	24	24	24	
25	27 11.6 +57.5	94.7	27 06.4 +57.8	95.2	27 00.7 +58.1	95.7	26 54.5 +58.4	96.2	26 47.7 +58.7	96.7	26 40.5 +58.9	97.2	26 32.7 +59.1	97.7	26 24.4 +59.3	98.2	25	25	25	25	25	25	25	25	
26	28 09.1 +57.4	94.4	28 04.2 +57.8	94.9	27 58.8 +58.1	95.4	27 52.9 +58.4	96.0	27 46.4 +58.6	96.5	27 39.4 +58.8	97.0	27 31.8 +59.1	97.5	27 23.7 +59.2	98.0	26	26	26	26	26	26	26	26	
27	29 06.5 +57.4	94.0	29 02.0 +57.8	94.6	28 56.9 +58.1	95.1	28 51.3 +58.3	95.7	28 45.0 +58.6	96.2	28 38.2 +58.9	96.8	28 30.9 +59.0	97.3	28 22.9 +59.3	97.9	27	27	27	27	27	27	27	27	
28	30 03.9 +57.4	93.7	29 59.8 +57.6	94.3	29 55.0 +58.0	94.8	29 49.6 +58.3	95.4	29 43.6 +58.6	96.0	29 37.1 +58.8	96.6	29 29.9 +59.1	97.1	29 22.2 +59.3	97.7	28	28	28	28	28	28	28	28	
29	31 01.3 +57.3	93.4	30 57.4 +57.7	94.0	30 53.0 +58.0	94.6	30 47.9 +58.3	95.1	30 42.2 +58.6	95.7	30 35.9 +58.8	96.3	30 29.0 +59.0	96.9	30 21.5 +59.2	97.5	29	29	29	29	29	29	29	29	
30	31 58.6 +57.2	93.0	31 55.1 +57.6	93.6	31 51.0 +57.9	94.3	31 46.2 +58.2	94.9	31 40.8 +58.5	95.5	31 34.7 +58.8	96.1	31 28.0 +59.1	96.7	31 20.7 +59.2	97.3	30	30	30	30	30	30	30	30	
31	32 55.8 +57.2	92.7	32 52.7 +57.5	93.3	32 48.9 +57.9	93.9	32 44.4 +58.2	94.6	32 39.3 +58.5	95.2	32 33.5 +58.8	95.9	32 27.1 +58.9	96.5	32 19.9 +59.2	97.1	31	31	31	31	31	31	31	31	
32	33 53.0 +57.1	92.3	33 50.2 +57.5	93.0	33 46.8 +57.8	93.6	33 42.6 +58.2	94.3	33 37.8 +58.5	95.0	33 32.3 +58.7	95.6	33 26.0 +59.0	96.3	33 19.1 +59.2	96.9	32	32	32	32	32	32	32	32	
33	34 50.1 +57.0	91.9	34 47.7 +57.4	92.6	34 44.6 +57.8	93.3	34 40.8 +58.1	94.0	34 36.3 +58.4	94.7	34 31.0 +58.7	95.4	34 25.0 +59.0	96.1	34 18.3 +59.2	96.7	33	33	33	33	33	33	33	33	
34	35 47.1 +57.0	91.5	35 45.1 +57.4	92.3	35 42.4 +57.7	93.0	35 38.9 +58.1	93.7	35 34.7 +58.4	94.4	35 29.7 +58.6	95.1	35 24.0 +58.9	95.8	35 17.5 +59.2	96.5	34	34	34	34	34	34	34	34	
35	36 44.1 +56.9	91.1	36 42.5 +57.3	91.9	36 40.1 +57.7	92.6	36 37.0 +58.0	93.4	36 33.0 +58.4	94.1	36 28.3 +58.7	94.9	36												

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 78°, 282°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z																						
0	3 05.1 -58.1	101.6		2 53.0 -58.3	101.7		2 40.8 -58.5	101.7		2 28.7 -58.8	101.7		2 16.4 -58.9	101.8		2 04.1 -59.1	101.8		1 51.8 -59.3	101.9		1 39.5 -59.5	101.9		0
1	2 07.0 -58.0	101.9		1 54.7 -58.3	101.9		1 42.3 -58.5	101.9		1 29.9 -58.7	101.9		1 17.5 -59.0	102.0		1 05.0 -59.1	102.0		0 52.5 -59.3	102.0		0 40.0 -59.4	102.0		1
2	1 09.0 -58.1	102.1		0 56.4 -58.3	102.1		0 43.8 -58.5	102.1		0 31.2 -58.8	102.2		0 18.5 -58.9	102.2		0 05.9 -59.1	102.2		0 06.8 +59.2	77.8		0 19.4 +59.4	77.8		2
3	0 10.9 -58.0	102.4		0 01.9 +58.3	77.6		0 14.7 +58.6	77.6		0 27.6 +58.7	77.6		0 40.4 +59.0	77.7		0 53.2 +59.2	77.7		1 06.0 +59.3	77.7		1 18.8 +59.5	77.7		3
4	0 47.1 +58.0	77.4		1 00.2 +58.3	77.4		1 13.3 +58.5	77.4		1 26.3 +58.8	77.4		1 39.4 +58.9	77.5		1 52.4 +59.1	77.5		2 05.3 +59.3	77.5		2 18.3 +59.4	77.6		4
5	1 45.1 +58.1	77.1		1 58.5 +58.3	77.2		2 11.8 +58.5	77.2		2 25.1 +58.7	77.2		2 38.3 +59.0	77.3		2 51.5 +59.1	77.3		3 04.6 +59.3	77.4		3 17.7 +59.5	77.4		5
6	2 43.2 +58.0	76.9		2 56.8 +58.3	76.9		3 10.3 +58.6	77.0		3 23.8 +58.8	77.0		3 37.3 +58.9	77.1		3 50.6 +59.1	77.2		4 03.9 +59.3	77.2		4 17.2 +59.4	77.3		6
7	3 41.2 +58.1	76.6		3 55.1 +58.3	76.7		4 08.9 +58.5	76.8		4 22.6 +58.7	76.8		4 36.2 +58.9	76.9		4 49.7 +59.2	77.0		5 03.2 +59.3	77.1		5 16.6 +59.4	77.2		7
8	4 39.3 +58.0	76.4		4 53.4 +58.2	76.4		5 07.4 +58.5	76.5		5 21.3 +58.7	76.6		5 35.1 +59.0	76.7		5 48.9 +59.1	76.8		6 02.5 +59.3	76.9		6 16.0 +59.5	77.0		8
9	5 37.3 +58.0	76.1		5 51.6 +58.3	76.2		6 05.9 +58.5	76.3		6 20.0 +58.8	76.4		6 34.1 +58.9	76.5		6 48.0 +59.1	76.6		7 01.8 +59.3	76.8		7 15.5 +59.4	76.9		9
10	6 35.3 +58.0	75.9		6 49.9 +58.3	76.0		7 04.4 +58.5	76.1		7 18.8 +58.7	76.2		7 33.0 +58.9	76.3		7 47.1 +59.1	76.5		8 01.1 +59.2	76.6		8 14.9 +59.4	76.7		10
11	7 33.3 +58.0	75.6		7 48.2 +58.2	75.7		8 02.9 +58.5	75.9		8 17.5 +58.7	76.0		8 31.9 +58.9	76.1		8 46.2 +59.1	76.3		9 00.3 +59.3	76.4		9 14.3 +59.4	76.6		11
12	8 31.3 +58.0	75.3		8 46.4 +58.3	75.5		9 01.4 +58.5	75.6		9 16.2 +58.7	75.8		9 30.8 +58.9	76.0		9 45.3 +59.1	76.1		9 59.6 +59.3	76.3		10 13.7 +59.5	76.5		12
13	9 29.3 +58.0	75.1		9 44.7 +58.2	75.2		9 55.9 +58.5	75.4		10 14.9 +58.7	75.6		10 29.7 +59.0	75.8		10 44.4 +59.1	75.9		10 58.9 +59.2	76.1		11 13.2 +59.4	76.3		13
14	10 27.3 +58.0	74.8		10 42.9 +58.3	75.0		10 58.4 +58.4	75.2		11 13.6 +58.7	75.4		11 28.7 +58.9	75.6		11 43.5 +59.1	75.8		11 58.1 +59.3	76.0		12 12.6 +59.4	76.2		14
15	11 25.3 +57.9	74.6		11 41.2 +58.2	74.8		11 56.8 +58.5	75.0		12 12.3 +58.7	75.2		12 27.6 +58.8	75.4		12 42.6 +59.1	75.6		12 57.4 +59.3	75.8		13 12.0 +59.4	76.0		15
16	12 23.2 +58.0	74.3		12 39.4 +58.2	74.5		12 55.3 +58.4	74.7		13 11.0 +58.6	75.0		13 26.4 +58.9	75.2		13 41.7 +59.0	75.4		13 56.7 +59.2	75.7		14 11.4 +59.4	75.9		16
17	13 21.2 +57.9	74.0		13 37.6 +58.2	74.3		13 53.7 +58.5	74.5		14 09.6 +58.7	74.7		14 25.3 +58.9	75.0		14 40.7 +59.1	75.2		14 55.9 +59.2	75.5		15 10.8 +59.4	75.7		17
18	14 19.1 +57.9	73.8		14 35.8 +58.1	74.0		14 52.2 +58.4	74.3		15 08.3 +58.7	74.5		15 24.2 +58.9	74.8		15 39.8 +59.1	75.1		15 55.1 +59.3	75.3		16 10.2 +59.4	75.6		18
19	15 17.0 +57.9	73.5		15 33.9 +58.2	73.8		15 50.6 +58.4	74.0		16 07.0 +58.6	74.3		16 23.1 +58.8	74.6		16 38.9 +59.0	74.9		16 54.4 +59.2	75.2		17 09.6 +59.4	75.5		19
20	16 14.9 +57.9	73.2		16 32.1 +58.1	73.5		16 49.0 +58.4	73.8		17 05.6 +58.6	74.1		17 21.9 +58.8	74.4		17 37.9 +59.0	74.7		17 53.6 +59.2	75.0		18 09.0 +59.4	75.3		20
21	17 12.8 +57.8	72.9		17 30.2 +58.1	73.2		17 47.4 +58.3	73.5		18 04.2 +58.6	73.9		18 20.7 +58.9	74.2		18 36.9 +59.1	74.5		18 52.8 +59.2	74.8		19 08.4 +59.3	75.2		21
22	18 10.6 +57.8	72.7		18 28.3 +58.1	73.0		18 45.7 +58.4	73.3		19 02.8 +58.6	73.6		19 19.6 +58.8	74.0		19 36.0 +59.0	74.3		19 52.0 +59.2	74.6		20 07.7 +59.4	75.0		22
23	19 08.4 +57.8	72.4		19 26.4 +58.1	72.7		19 44.1 +58.3	73.1		20 01.4 +58.6	73.4		20 18.4 +58.8	73.8		20 35.0 +59.0	74.1		20 51.2 +59.2	74.5		21 07.1 +59.3	74.8		23
24	20 06.2 +57.8	72.1		20 24.5 +58.0	72.4		20 42.4 +58.3	72.8		21 00.0 +58.5	73.2		21 17.2 +58.7	73.5		21 34.0 +59.0	73.9		21 50.4 +59.2	74.3		22 06.4 +59.4	74.7		24
25	21 04.0 +57.7	71.8		21 22.5 +58.0	72.2		21 40.7 +58.3	72.5		21 58.5 +58.5	72.9		22 15.9 +58.8	73.3		22 33.0 +58.9	73.7		22 49.6 +59.1	74.1		23 05.8 +59.3	74.5		25
26	22 01.7 +57.7	71.5		22 20.5 +58.0	71.9		22 39.0 +58.3	72.3		22 57.0 +58.6	72.7		23 14.7 +58.7	73.1		23 31.9 +59.0	73.5		23 48.7 +59.2	73.9		24 05.1 +59.3	74.4		26
27	22 59.4 +57.7	71.2		23 18.5 +58.0	71.6		23 37.3 +58.2	72.0		23 55.6 +58.4	72.5		24 13.4 +58.7	72.9		24 30.9 +58.9	73.3		24 47.9 +59.1	73.8		25 04.4 +59.4	74.2		27
28	23 57.1 +57.6	70.9		24 16.5 +57.9	71.3		24 35.5 +58.2	71.8		24 54.0 +58.5	72.2		25 12.1 +58.7	72.7		25 29.8 +58.9	73.1		25 47.0 +59.1	73.6		26 03.8 +59.3	74.0		28
29	24 54.7 +57.6	70.6		25 14.4 +57.9	71.1		25 33.7 +58.2	71.5		25 52.5 +58.4	72.0		26 10.8 +58.7	72.4		26 28.7 +58.9	72.9		26 46.1 +59.1	73.4		27 03.1 +59.2	73.9		29
30	25 52.3 +57.6	70.3		26 12.3 +57.9	70.8		26 31.9 +58.1	71.2		26 50.9 +58.4	71.7		27 09.5 +58.7	72.2		27 27.6 +58.9	72.7		27 45.2 +59.1	73.2		28 02.3 +59.3	73.7		30
31	26 49.9 +57.5	70.0		27 10.2 +57.8	70.5		27 30.0 +58.1	71.0		27 49.3 +58.4	71.4		28 08.2 +58.6	72.0		28 26.5 +58.9	72.5		28 44.3 +59.1	73.0		29 01.6 +59.3	73.5		31
32	27 47.4 +57.5	69.7		28 08.0 +57.8	70.2		28 28.1 +58.1	70.7		28 47.7 +58.4	71.2		29 06.8 +58.6	71.7		29 25.4 +58.7	72.2		29 43.4 +59.1	72.8		30 0.9 +59.2	73.3		32
33	28 44.9 +57.4	69.3		29 05.8 +57.7	69.9		29 26.2 +58.0	70.4		29 46.1 +58.3	70.9		30 05.4 +58.6	71.5		30 24.2 +58.8	72.0		30 42.5 +59.0	72.6		31 00.1 +59.3	73.1		33
34	29 42.3 +57.3	69.0		30 03.5 +57.7	69.5		30 24.2 +58.0	70.1		30 44.4 +58.3	70.6		31 04.0 +58.5	71.2		31 23.0 +58.8	71.8		31 41.5 +59.0	72.4		31 59.4 +59.2	73.0		34
35	30 39.6 +57.4	68.7		31 01.2 +57.6	69.2		31 22.2 +58.0	69.8		31 42.7 +58.2	70.4		32 02.5 +58.5	71.0		32 21.8 +58.8	71.5		32 40.5 +59.0	72.2		32 58.6 +59.2	72.8		35
36	31 37.0 +57.2	68.3		31 58.8 +57.6	68.9		32 20.2 +57.9	69.5		32 40.9 +58.2	70.1		33 01.0 +58.5	70.7		33 20.6 +58.7	71.3		33 39.5 +59.0	71.9		33 57.8 +59.1	72.6		36
37	32 34.2 +57.2	68.0		32 56.4 +57.6	68.6		33 18.1 +57.8	69.2		33 39.1 +58.2	69.8		33 59.5 +58.7	70.4		34 19.3 +58.7	71.1		34 38.5 +58.9	71.7		34 56.9 +59.2	72.4		37
38	33 31.4 +57.1	67.																							

79°, 281° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	2 49.8 +58.1	100.6	2 38.7 +58.3	100.7	2 27.6 +58.5	100.7	2 16.4 +58.8	100.8	2 05.2 +58.9	100.8	1 53.9 +59.1	100.8	1 42.6 +59.3	100.9	1 31.3 +59.4	100.9	0	2 28.5 +59.4	100.2	6 28.5 +59.4	100.2	5			
1	3 47.9 +58.0	100.4	3 37.0 +58.3	100.4	3 26.1 +58.5	100.5	3 15.2 +58.7	100.6	3 04.1 +59.0	100.6	2 53.0 +59.2	100.7	2 41.9 +59.3	100.7	2 30.7 +59.5	100.8	1	7 27.9 +59.4	100.1	7 38.3 +59.3	99.9	6			
2	4 45.9 +58.0	100.1	4 35.3 +58.3	100.2	4 24.6 +58.5	100.3	4 13.9 +58.7	100.4	4 03.1 +58.9	100.4	3 52.2 +59.1	100.5	3 41.2 +59.3	100.6	3 30.2 +59.4	100.6	2	8 27.3 +59.5	99.9	8 37.6 +59.3	99.8	7			
3	5 43.9 +58.0	99.9	5 33.6 +58.2	100.0	5 23.1 +58.5	100.1	5 12.6 +58.7	100.2	5 02.0 +58.9	100.2	4 51.3 +59.1	100.3	4 40.5 +59.3	100.4	4 29.6 +59.4	100.5	3	9 36.9 +59.2	99.6	9 26.8 +59.4	99.8	8			
4	6 41.9 +58.0	99.6	6 31.8 +58.3	99.7	6 21.6 +58.5	99.8	6 11.3 +58.8	99.9	6 00.9 +58.9	100.0	5 50.4 +59.1	100.2	5 39.8 +59.2	100.3	5 29.0 +59.5	100.3	4	10 45.9 +59.1	99.3	10 36.1 +59.3	99.5	9			
5	7 39.9 +58.0	99.4	7 30.1 +58.2	99.5	7 20.1 +58.5	99.6	7 10.1 +58.7	99.7	6 59.8 +59.0	99.9	6 49.5 +59.1	100.0	6 39.0 +59.3	100.1	6 28.5 +59.4	100.2	5	12 34.7 +59.2	99.1	12 24.1 +59.0	99.4	11			
6	8 37.9 +58.0	99.1	8 28.3 +58.3	99.2	8 18.6 +58.5	99.4	8 08.8 +58.7	99.5	7 58.8 +58.9	99.7	7 48.6 +59.1	99.8	7 38.3 +59.3	99.9	7 27.9 +59.4	100.1	6	13 40.9 +59.1	99.0	13 33.9 +59.2	99.0	12			
7	9 35.9 +57.9	98.8	9 26.6 +58.2	99.0	9 17.1 +58.5	99.2	9 07.5 +58.7	99.3	8 57.7 +58.9	99.5	8 47.7 +59.1	99.6	8 37.6 +59.3	99.8	8 27.3 +59.5	99.9	7	14 42.2 +59.1	98.6	14 33.1 +59.3	98.8	13			
8	10 33.8 +58.0	98.6	10 24.8 +58.2	98.8	10 15.6 +58.5	98.9	10 06.2 +58.7	99.1	9 56.6 +58.9	99.3	9 46.8 +59.1	99.5	9 36.9 +59.2	99.6	9 26.8 +59.4	99.8	8	15 49.5 +59.1	99.3	15 32.4 +59.2	98.7	14			
9	11 31.8 +57.9	98.3	11 23.0 +58.2	98.5	11 14.1 +58.4	98.7	11 04.9 +58.7	98.9	10 55.5 +58.9	99.1	10 45.9 +59.1	99.3	10 36.1 +59.3	99.5	10 26.2 +59.4	99.6	9	16 39.0 +59.3	100.1	16 28.5 +59.4	100.2	5			
10	12 29.7 +58.0	98.0	12 21.2 +58.2	98.3	12 12.5 +58.4	98.5	12 03.6 +58.6	98.7	11 54.4 +58.9	98.9	11 45.0 +59.1	99.1	11 35.4 +59.3	99.3	11 25.6 +59.4	99.5	10	17 30.8 +59.2	98.3	17 22.0 +59.4	98.6	16			
11	13 27.7 +57.9	97.8	13 19.4 +58.2	98.0	13 10.9 +58.5	98.2	13 02.2 +58.7	98.5	12 53.3 +58.8	98.7	12 44.1 +59.0	98.9	12 34.7 +59.2	99.1	12 25.0 +59.4	99.4	11	18 37.6 +59.3	99.0	18 28.4 +59.4	98.5	17			
12	14 25.6 +57.9	97.5	14 17.6 +58.2	97.8	14 09.4 +58.4	98.0	14 00.9 +58.6	98.3	13 52.1 +58.9	98.5	13 43.1 +59.1	98.7	13 33.9 +59.2	99.0	13 24.4 +59.4	99.2	12	19 37.4 +59.0	97.3	19 29.2 +59.2	98.0	18			
13	15 23.5 +57.8	97.2	15 15.8 +58.1	97.5	15 07.8 +58.4	97.8	14 59.5 +58.7	98.0	14 51.0 +58.9	98.3	14 42.2 +59.1	98.6	14 33.1 +59.3	98.8	14 23.8 +59.4	99.1	13	20 36.4 +59.0	97.4	20 28.4 +59.2	98.2	19			
14	16 21.3 +57.9	97.0	16 13.9 +58.1	97.2	16 06.2 +58.4	97.5	15 58.2 +58.6	97.8	15 49.9 +58.8	98.1	15 41.3 +59.0	98.4	15 32.4 +59.2	98.7	15 23.2 +59.4	98.9	14	21 36.1 +59.3	99.3	21 26.5 +59.4	99.5	20			
15	17 19.2 +57.8	96.7	17 12.0 +58.1	97.0	17 04.6 +58.3	97.3	16 56.8 +58.6	97.6	16 48.7 +58.9	97.9	16 40.3 +59.1	98.2	16 31.6 +59.2	98.5	16 22.6 +59.4	98.8	15	22 34.4 +58.9	97.0	22 26.8 +59.2	97.5	21			
16	18 17.0 +57.8	96.4	18 10.1 +58.1	96.7	18 02.9 +58.4	97.1	17 55.4 +58.6	97.4	17 47.6 +58.8	97.7	17 39.4 +59.0	98.0	17 30.8 +59.2	98.3	17 22.0 +59.4	98.6	16	23 38.4 +59.0	97.5	23 29.4 +59.2	98.2	22			
17	19 14.8 +57.8	96.1	19 08.2 +58.1	96.5	19 01.3 +58.3	96.8	18 54.0 +58.6	97.1	18 46.4 +58.8	97.5	18 38.4 +59.0	97.8	18 30.0 +59.2	98.2	18 21.4 +59.3	98.5	17	24 33.9 +59.0	97.3	24 25.1 +59.1	97.1	23			
18	20 12.6 +57.7	95.8	20 06.3 +58.0	96.2	19 59.6 +58.3	96.6	19 52.6 +58.6	96.9	19 45.2 +58.8	97.3	19 37.4 +59.0	97.6	19 29.2 +59.2	98.0	19 20.7 +59.4	98.3	18	25 33.9 +59.0	97.3	25 24.8 +59.2	96.9	24			
19	21 10.3 +57.7	95.5	21 04.3 +58.0	95.9	20 57.9 +58.3	96.3	20 51.2 +58.5	96.7	20 44.0 +58.7	97.1	20 36.4 +59.0	97.4	20 28.4 +59.2	97.8	20 20.1 +59.4	98.2	19	26 35.4 +59.0	97.3	26 27.6 +59.2	97.6	25			
20	22 08.0 +57.7	95.2	22 02.3 +58.0	95.6	21 56.2 +58.3	96.1	21 49.7 +58.5	96.4	21 42.7 +58.8	96.8	21 35.4 +59.0	97.2	21 27.6 +59.2	97.6	21 19.5 +59.3	98.0	20	27 34.4 +59.0	97.5	27 26.8 +59.2	97.5	26			
21	23 05.7 +57.7	94.9	23 00.3 +58.0	95.4	22 54.5 +58.2	95.8	22 48.2 +58.5	96.2	22 41.5 +58.7	96.6	22 34.4 +58.9	97.0	22 26.8 +59.2	97.5	22 18.8 +59.3	97.9	21	28 34.0 +59.0	97.5	28 26.4 +59.2	97.5	20			
22	24 03.4 +57.6	94.6	23 28.3 +57.9	95.1	23 52.7 +58.2	95.5	23 46.7 +58.5	96.0	23 40.2 +58.8	96.4	23 33.3 +59.0	96.8	23 26.0 +59.1	97.3	23 18.1 +59.4	97.7	22	29 34.0 +59.0	97.3	29 26.4 +59.2	97.5	21			
23	25 01.0 +57.6	94.3	24 56.2 +57.9	94.8	24 50.9 +58.2	95.3	24 45.2 +58.4	95.7	24 39.0 +58.7	96.2	24 32.3 +58.9	96.6	24 25.1 +59.1	97.1	24 17.5 +59.3	97.5	23	30 35.5 +58.3	95.3	30 28.8 +58.6	94.7	29			
24	25 58.6 +57.5	94.0	25 54.1 +57.8	94.5	25 49.1 +58.2	95.0	25 43.6 +58.5	95.5	25 37.7 +58.7	96.0	25 31.2 +58.9	96.4	25 24.2 +59.2	96.9	25 16.8 +59.3	97.4	24	31 35.9 +58.7	96.3	31 29.3 +59.1	96.7	30			
25	26 56.1 +57.5	93.7	26 51.9 +57.9	94.2	26 47.3 +58.1	94.7	26 42.1 +58.4	95.2	26 36.4 +58.6	95.7	26 30.1 +58.9	96.2	26 23.4 +59.1	96.7	26 16.1 +59.3	97.2	25	32 34.7 +58.7	96.3	32 28.6 +59.1	96.7	31			
26	27 53.6 +57.4	93.4	27 49.8 +57.7	93.9	27 45.4 +58.1	94.4	27 40.5 +58.3	95.0	27 35.0 +58.6	95.5	27 29.0 +58.9	96.0	27 22.5 +59.0	96.5	27 15.4 +59.3	97.0	26	33 34.0 +58.7	96.3	33 28.5 +59.1	96.7	32			
27	28 51.0 +57.4	93.1	28 47.5 +57.8	93.6	28 43.5 +58.0	94.2	28 38.8 +58.4	94.7	28 33.6 +58.6	95.2	28 27.9 +58.8	95.8	28 21.5 +59.1	96.3	28 14.7 +59.2	96.9	27	34 33.9 +58.7	96.3	34 28.6 +59.1	96.7	33			
28	29 48.4 +57.4	92.7	29 45.3 +57.7	93.3	29 41.5 +58.0	93.9	29 37.2 +58.3	94.4	29 32.2 +58.6	95.0	29 26.7 +58.9	95.6	29 20.6 +59.1	96.1	29 13.9 +59.3	96.7	28	35 30.8 +58.6	95.3	35 24.7 +59.2	95.5	34			
29	30 45.8 +57.3	92.4	30 43.0 +57.6	93.0	30 39.5 +58.0	93.6	30 35.5 +58.3	94.2	30 30.8 +58.0	94.7	30 25.6 +58.8	95.3	30 19.7 +59.0	95.9	30 13.2 +59.2	96.5	29	36 30.8 +58.6	95.3	36 24.8 +59.1	95.5	35			
30	31 43.1 +57.2	92.0	31 40.6 +57.6	92.7	31 37.5 +57.9	93.3	31 33.8 +58.2	93.9	31 29.4 +58.5	94.5	31 24.4 +58.7	95.1	31 18.7 +59.0	95.7	31 12.4 +59.2	96.3	30	37 34.0 +58.7	96.1	37 28.6 +59.1	96.5	36			
31	32 40.3 +57.2	91.7	32 38.2 +57.5	92.3	32 35.4 +57.9	93.0	32 32.0 +58.2	93.6	32 27.9 +58.5	94.2	32 23.1 +58.4	94.9	32 17.7 +59.0	95.5	32 11.6 +59.2	96.1	31	38 34.0 +58.7	96.1	38 28.6 +59.1	96.9	37			
32	33 37.5 +57.1	91.3	33 33.5 +57.5	92.0	33 30.3 +57.8	92.6	33 30.2 +58.1	93.3	33 26.4 +58.4	94.0	33 21.9 +58.7	94.6	33 16.7 +59.0	95.3	33 10.8 +59.2	95.9	32	39 34.0 +58.7	96.1	39 28.6 +59.1	96.7	38			
33	34 34.6 +57.0	90.9	34 33.2 +57.4	91.6	34 31.1 +57.8	92.3	34 28.3 +58.2	93.0	34 24.8 +58.4	93.7	34 20.6 +58.7	94.4	34 15.7 +58.9	95.1	34 10.0 +59.2	95.7	33	40 34.0 +58.7	96.1	40 28.6 +59.1	96.4	39			
34	35 31.6 +57.0	90.6	35 30.3 +57.4	91.3																					

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 79°, 281°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z																						
0	2 49.8 -58.0	100.6		2 38.7 -58.2	100.7		2 27.6 -58.5	100.7		2 16.4 -58.7	100.8		2 05.2 -58.9	100.8		1 53.9 -59.1	100.8		1 42.6 -59.3	100.9		1 31.3 -59.4	100.9		0
1	1 51.8 -58.0	100.9		1 40.5 -58.3	100.9		1 29.1 -58.5	100.9		1 17.7 -58.8	101.0		1 06.3 -59.0	101.0		0 54.8 -59.1	101.0		0 43.3 -59.2	101.0		0 31.9 -59.5	101.0		1
2	0 53.8 -58.0	101.1		0 42.2 -58.3	101.2		0 30.6 -58.6	101.2		0 18.9 -58.7	101.2		0 07.3 -58.9	101.2		0 04.3 +59.1	78.8		0 15.9 +59.3	78.8		0 27.6 +59.4	78.8		2
3	0 04.2 +58.1	78.6		0 16.1 +58.3	78.6		0 28.0 +58.5	78.6		0 39.8 +58.7	78.6		0 51.6 +59.0	78.6		1 03.4 +59.2	78.7		1 15.2 +59.3	78.7		1 27.0 +59.4	78.7		3
4	1 02.3 +58.0	78.3		1 14.4 +58.3	78.4		1 26.5 +58.5	78.4		1 38.5 +58.8	78.4		1 50.6 +58.9	78.4		2 02.6 +59.1	78.5		2 14.5 +59.3	78.5		2 26.4 +59.5	78.6		4
5	2 00.3 +58.0	78.1		2 12.7 +58.2	78.1		2 25.0 +58.5	78.2		2 37.3 +58.7	78.2		2 49.5 +58.9	78.3		3 01.7 +59.1	78.3		3 13.8 +59.3	78.4		3 25.9 +59.4	78.4		5
6	2 58.3 +58.1	77.8		3 10.9 +58.3	77.9		3 23.5 +58.5	77.9		3 36.0 +58.7	78.0		3 48.4 +59.0	78.1		4 00.8 +59.1	78.1		4 13.1 +59.3	78.2		4 25.3 +59.5	78.3		6
7	3 56.4 +58.0	77.6		4 09.2 +58.3	77.7		4 22.0 +58.5	77.7		4 34.7 +58.8	77.8		4 47.4 +58.9	77.9		4 59.9 +59.1	78.0		5 12.4 +59.3	78.1		5 24.8 +59.4	78.1		7
8	4 54.4 +58.0	77.3		5 07.5 +58.3	77.4		5 20.5 +58.5	77.5		5 33.5 +58.7	77.6		5 46.3 +58.9	77.7		5 59.0 +59.1	77.8		6 11.7 +59.2	77.9		6 24.2 +59.4	78.0		8
9	5 52.4 +58.0	77.1		6 05.8 +58.2	77.2		6 19.0 +58.5	77.3		6 32.2 +58.7	77.4		6 45.2 +58.9	77.5		6 58.1 +59.1	77.6		7 10.9 +59.3	77.7		7 23.6 +59.4	77.9		9
10	6 50.4 +58.0	76.8		7 04.0 +58.3	76.9		7 17.5 +58.5	77.1		7 30.9 +58.7	77.2		7 44.1 +59.0	77.3		7 57.2 +59.1	77.4		8 10.2 +59.3	77.6		8 23.0 +59.5	77.7		10
11	7 48.4 +58.0	76.6		8 02.3 +58.2	76.7		8 16.0 +58.5	76.8		8 29.6 +58.7	77.0		8 43.1 +58.9	77.1		8 56.3 +59.1	77.3		9 09.5 +59.3	77.4		9 22.5 +59.4	77.6		11
12	8 46.4 +58.0	76.3		9 00.5 +58.3	76.5		9 14.5 +58.5	76.6		9 28.3 +58.7	76.8		9 42.0 +58.9	76.9		9 55.4 +59.1	77.1		10 08.8 +59.2	77.3		10 21.9 +59.4	77.4		12
13	9 44.4 +57.9	76.0		9 58.8 +58.2	76.2		10 13.0 +58.4	76.4		10 27.0 +58.7	76.6		10 40.9 +58.9	76.7		10 54.5 +59.1	76.9		11 08.0 +59.3	77.1		11 21.3 +59.4	77.3		13
14	10 42.3 +58.0	75.8		10 57.0 +58.2	76.0		11 11.4 +58.5	76.2		11 25.7 +58.7	76.3		11 39.8 +58.9	76.5		11 53.6 +59.1	76.7		12 07.3 +59.2	77.0		12 20.7 +59.4	77.2		14
15	11 40.3 +57.9	75.5		11 55.2 +58.2	75.7		12 09.9 +58.4	75.9		12 24.4 +58.7	76.1		12 38.7 +58.8	76.3		12 52.7 +59.1	76.6		13 06.5 +59.3	76.8		13 20.1 +59.4	77.0		15
16	12 38.2 +57.9	75.2		12 53.4 +58.2	75.5		13 08.3 +58.5	75.7		13 23.1 +58.6	75.9		13 37.5 +58.9	76.2		13 51.8 +59.0	76.4		14 05.8 +59.2	76.6		14 19.5 +59.4	76.9		16
17	13 36.1 +57.9	75.0		13 51.6 +58.1	75.2		14 06.8 +58.4	75.5		14 21.7 +58.7	75.7		14 36.4 +58.9	76.0		14 50.8 +59.1	76.2		15 05.0 +59.2	76.5		15 18.9 +59.4	76.7		17
18	14 34.0 +57.9	74.7		14 49.7 +58.2	75.0		15 05.2 +58.4	75.2		15 20.4 +58.6	75.5		15 35.3 +58.8	75.8		15 49.9 +59.0	76.0		16 04.2 +59.3	76.3		16 18.3 +59.4	76.6		18
19	15 31.9 +57.9	74.4		15 47.9 +58.1	74.7		16 03.6 +58.4	75.0		16 19.0 +58.6	75.3		16 34.1 +58.8	75.5		16 48.9 +59.1	75.8		17 03.5 +59.2	76.1		17 17.7 +59.4	76.4		19
20	16 29.8 +57.8	74.2		16 46.0 +58.1	74.4		17 02.0 +58.3	74.7		17 17.6 +58.6	75.0		17 32.9 +58.9	75.3		17 48.0 +59.0	75.7		18 02.7 +59.2	76.0		18 17.1 +59.3	76.3		20
21	17 27.6 +57.9	73.9		17 44.1 +58.1	74.2		18 00.3 +58.4	74.5		18 16.2 +58.6	74.8		18 31.8 +58.8	75.1		18 47.0 +59.0	75.5		19 01.9 +59.2	75.8		19 16.4 +59.4	76.1		21
22	18 25.5 +57.8	73.6		18 42.2 +58.1	73.9		18 58.7 +58.3	74.3		19 14.8 +58.6	74.6		19 30.6 +58.8	74.9		19 46.0 +59.0	75.3		20 01.1 +59.2	75.6		20 15.8 +59.4	76.0		22
23	19 23.3 +57.7	73.3		19 40.3 +58.1	73.7		19 57.0 +58.3	74.0		20 13.4 +58.5	74.4		20 29.4 +58.8	74.7		20 45.0 +59.0	75.1		21 00.3 +59.2	75.4		21 15.2 +59.3	75.8		23
24	20 21.0 +57.8	73.0		20 38.4 +58.0	73.4		20 55.3 +58.3	73.8		21 11.9 +58.6	74.1		21 28.2 +58.7	74.5		21 44.0 +59.0	74.9		21 59.5 +59.1	75.3		22 14.5 +59.4	75.7		24
25	21 18.8 +57.7	72.7		21 36.4 +58.0	73.1		21 53.6 +58.3	73.5		22 10.5 +58.5	73.9		22 26.9 +58.8	74.3		22 43.0 +58.9	74.7		22 58.6 +59.2	75.1		23 13.9 +59.3	75.5		25
26	22 16.5 +57.7	72.4		22 34.4 +57.9	72.8		22 51.9 +58.2	73.2		23 09.0 +58.5	73.6		23 25.7 +58.7	74.1		23 41.9 +59.0	74.5		23 57.8 +59.1	74.9		24 13.2 +59.3	75.3		26
27	23 14.2 +57.6	72.1		23 32.3 +58.0	72.6		23 50.1 +58.2	73.0		24 07.5 +58.4	73.4		24 24.4 +58.7	73.8		24 40.9 +58.9	74.3		24 56.9 +59.1	74.7		25 12.5 +59.3	75.2		27
28	24 11.8 +57.6	71.8		24 30.3 +57.9	72.3		24 48.3 +58.2	72.7		25 05.9 +58.5	73.2		25 23.1 +58.7	73.6		25 39.8 +58.9	74.1		25 56.0 +59.2	74.5		26 11.8 +59.3	75.0		28
29	25 09.4 +57.6	71.5		25 28.2 +57.9	72.0		25 46.5 +58.2	72.4		26 04.4 +58.4	72.9		26 21.8 +58.7	73.4		26 38.7 +58.9	73.9		26 55.2 +59.1	74.3		27 11.1 +59.3	74.8		29
30	26 07.0 +57.5	71.2		26 26.1 +57.8	71.7		26 44.7 +58.1	72.2		27 02.8 +58.4	72.7		27 20.5 +58.6	73.1		27 37.6 +58.9	73.6		27 54.3 +59.0	74.1		28 10.4 +59.3	74.7		30
31	27 04.5 +57.5	70.9		27 23.9 +57.8	71.4		27 42.8 +58.1	71.9		28 01.2 +58.4	72.4		28 19.1 +58.6	72.9		28 36.5 +58.8	73.4		28 53.3 +59.1	73.9		29 09.7 +59.2	74.5		31
32	28 02.0 +57.4	70.6		28 21.7 +57.7	71.1		28 40.9 +58.0	71.6		28 59.6 +58.3	72.1		29 17.7 +58.6	72.7		29 35.3 +58.8	73.2		29 52.4 +59.0	73.7		30 08.9 +59.2	74.3		32
33	28 59.4 +57.4	70.3		29 19.4 +57.7	70.8		29 38.9 +58.0	71.3		29 57.9 +58.3	71.9		30 16.3 +58.5	72.4		30 34.1 +58.8	73.0		30 51.4 +59.1	73.5		31 08.1 +59.3	74.1		33
34	29 56.8 +57.3	69.9		30 17.1 +57.7	70.5		30 36.9 +58.0	71.0		30 56.2 +58.2	71.6		31 14.8 +58.6	72.2		31 32.9 +58.8	72.7		31 50.5 +59.0	73.3		32 07.4 +59.2	73.9		34
35	30 54.1 +57.3	69.6		31 14.8 +57.6	70.1		31 34.9 +58.3	70.7		32 13.4 +58.5	71.3		32 31.7 +58.8	72.5		32 49.5 +58.9	73.1		33 06.6 +59.2	73.7		35			
36	31 51.4 +57.3	69.2		32 12.4 +57.6	69.8		32 32.8 +57.9	70.4		32 52.7 +58.1	71.0		33 11.9 +58.4	71.6		33 30.5 +58.7	72.3		33 48.4 +59.0	72.9		34 05.8 +59.1	73.5		36
37	32 48.7 +57.1	68.9		33 10.0 +57.5	69.5		33 30.7 +57.9	70.1		33 50.8 +58.2	70.7		34 10.3 +58.5	71.4		34 29.2 +58.7	72.0		34 47.4 +58.9	72.7		35 04.9 +59.2	73.3		37
38	33 45.8 +57.1	68.5		34 07.5 +57.4	69																				

80°, 280° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.	
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
0	2 34.6 +58.0	99.7	2 24.5 +58.2	99.7	2 14.3 +58.5	99.7	2 04.1 +58.8	99.8	1 53.9 +59.0	99.8	1 43.7 +59.1	99.9	1 33.4 +59.3	99.9	1 23.1 +59.4	99.9	0	2 21.1 +59.4	99.9	0	2 22.5 +59.5	99.8	0	2 22.5 +59.5	99.8	0
1	3 32.6 +58.0	99.4	3 22.7 +58.3	99.5	3 12.8 +58.5	99.5	3 02.9 +58.7	99.6	2 52.9 +58.9	99.6	2 42.8 +59.1	99.7	2 32.7 +59.3	99.7	2 22.0 +59.4	99.6	1	3 22.0 +59.4	99.6	1	3 22.0 +59.4	99.6	1	3 22.0 +59.4	99.6	1
2	4 30.6 +58.0	99.2	4 21.0 +58.3	99.2	4 11.3 +58.5	99.3	4 01.6 +58.7	99.4	3 51.8 +58.9	99.4	3 41.9 +59.1	99.5	3 32.0 +59.2	99.5	3 21.4 +59.4	99.5	2	4 21.4 +59.4	99.5	2	4 21.4 +59.4	99.5	2	4 21.4 +59.4	99.5	2
3	5 28.6 +58.0	98.9	5 19.3 +58.2	99.0	5 09.8 +58.5	99.1	5 00.3 +58.7	99.2	4 50.7 +58.9	99.3	4 41.0 +59.1	99.3	4 31.2 +59.3	99.4	4 21.4 +59.4	99.5	3	5 21.4 +59.4	99.5	3	5 21.4 +59.4	99.5	3	5 21.4 +59.4	99.5	3
4	6 26.6 +58.0	98.6	6 17.5 +58.3	98.7	6 08.3 +58.5	98.9	5 59.0 +58.7	99.0	5 49.6 +58.9	99.1	5 40.1 +59.1	99.2	5 30.5 +59.3	99.3	5 20.8 +59.4	99.4	4	6 20.8 +59.4	99.4	4	6 20.8 +59.4	99.4	4	6 20.8 +59.4	99.4	4
5	7 24.6 +57.9	98.4	7 15.8 +58.2	98.5	7 06.8 +58.5	98.6	6 57.7 +58.7	98.8	6 48.5 +59.0	98.9	6 39.2 +59.1	99.0	6 29.8 +59.3	99.1	6 20.2 +59.5	99.2	5	7 20.2 +59.5	99.2	5	7 20.2 +59.5	99.2	5	7 20.2 +59.5	99.2	5
6	8 22.5 +58.0	98.1	8 14.0 +58.2	98.3	8 05.3 +58.5	98.4	7 56.4 +58.7	98.5	7 47.5 +58.9	98.7	7 38.3 +59.1	98.8	7 29.1 +59.2	98.9	7 19.7 +59.4	99.1	6	8 19.7 +59.4	99.1	6	8 19.7 +59.4	99.1	6	8 19.7 +59.4	99.1	6
7	9 20.5 +58.0	97.9	9 12.2 +58.2	98.0	9 03.8 +58.4	98.2	8 55.1 +58.7	98.3	8 46.4 +58.9	98.5	8 37.4 +59.1	98.6	8 28.3 +59.3	98.8	8 19.1 +59.4	98.9	7	9 18.5 +59.4	98.8	7	9 18.5 +59.4	98.8	7	9 18.5 +59.4	98.8	7
8	10 18.5 +57.9	97.6	10 10.4 +58.3	97.8	10 02.2 +58.5	98.0	9 53.8 +58.7	98.1	9 45.3 +58.9	98.3	9 36.5 +59.1	98.5	9 27.6 +59.3	98.6	9 18.5 +59.4	98.8	8	10 18.5 +59.4	98.8	8	10 18.5 +59.4	98.8	8	10 18.5 +59.4	98.8	8
9	11 16.4 +57.9	97.3	11 08.7 +58.2	97.5	11 00.7 +58.4	97.7	10 52.5 +58.7	97.9	10 44.2 +58.9	98.1	10 35.6 +59.1	98.3	10 26.9 +59.2	98.5	10 17.9 +59.4	98.7	9	11 17.9 +59.4	98.7	9	11 17.9 +59.4	98.7	9	11 17.9 +59.4	98.7	9
10	12 14.3 +58.0	97.1	12 06.9 +58.1	97.3	11 59.1 +58.5	97.5	11 51.2 +58.7	97.7	11 43.1 +58.8	97.9	11 34.7 +59.1	98.1	11 26.1 +59.3	98.3	11 17.3 +59.5	98.5	10	12 17.3 +59.5	98.5	10	12 17.3 +59.5	98.5	10	12 17.3 +59.5	98.5	10
11	13 12.3 +57.9	96.8	13 05.0 +58.2	97.0	12 57.6 +58.4	97.3	12 49.9 +58.6	97.5	12 41.9 +58.9	97.7	12 33.8 +59.0	97.9	12 25.4 +59.2	98.2	12 16.8 +59.4	98.4	11	13 16.8 +59.4	98.4	11	13 16.8 +59.4	98.4	11	13 16.8 +59.4	98.4	11
12	14 10.2 +57.8	96.5	14 03.2 +58.2	96.8	13 56.0 +58.4	97.0	13 48.5 +58.7	97.3	13 40.8 +58.9	97.5	13 32.8 +59.1	97.8	13 24.6 +59.3	98.0	13 16.2 +59.4	98.2	12	14 16.2 +59.4	98.2	12	14 16.2 +59.4	98.2	12	14 16.2 +59.4	98.2	12
13	15 08.0 +57.9	96.3	15 01.4 +58.1	96.5	14 54.4 +58.4	96.8	14 47.2 +58.6	97.1	14 39.7 +58.8	97.3	14 31.9 +59.0	97.6	14 23.9 +59.2	97.8	14 15.6 +59.3	98.1	13	15 15.6 +59.3	98.1	13	15 15.6 +59.3	98.1	13	15 15.6 +59.3	98.1	13
14	16 05.9 +57.8	96.0	15 59.5 +58.1	96.3	15 52.8 +58.4	96.6	15 45.8 +58.6	96.8	15 38.5 +58.9	97.1	15 30.9 +59.1	97.4	15 23.1 +59.2	97.7	15 14.9 +59.4	97.9	14	16 14.9 +59.4	97.9	14	16 14.9 +59.4	97.9	14	16 14.9 +59.4	97.9	14
15	17 03.7 +57.9	95.7	16 57.6 +58.1	96.0	16 51.2 +58.3	96.3	16 44.4 +58.6	96.6	16 37.4 +58.8	96.9	16 30.0 +59.0	97.2	16 22.3 +59.2	97.5	16 14.3 +59.4	97.8	15	16 14.3 +59.4	97.8	15	16 14.3 +59.4	97.8	15	16 14.3 +59.4	97.8	15
16	18 01.6 +57.7	95.4	17 55.7 +58.1	95.7	17 49.5 +58.4	96.1	17 43.0 +58.6	96.4	17 36.2 +58.8	96.7	17 29.0 +59.0	97.0	17 21.5 +59.2	97.3	17 13.7 +59.4	97.6	16	17 13.7 +59.4	97.6	16	17 13.7 +59.4	97.6	16	17 13.7 +59.4	97.6	16
17	18 59.3 +57.8	95.1	18 53.8 +58.0	95.5	18 47.9 +58.3	95.8	18 41.6 +58.6	96.2	18 35.0 +58.8	96.5	18 28.0 +59.1	96.8	18 20.7 +59.2	97.2	18 13.1 +59.4	97.5	17	18 13.1 +59.4	97.5	17	18 13.1 +59.4	97.5	17	18 13.1 +59.4	97.5	17
18	19 57.1 +57.8	94.9	19 51.8 +58.1	95.2	19 46.2 +58.3	95.6	19 40.2 +58.5	95.9	19 33.8 +58.8	96.3	19 27.1 +59.0	96.6	19 19.9 +59.2	97.0	19 12.5 +59.3	97.3	18	19 12.5 +59.3	97.3	18	19 12.5 +59.3	97.3	18	19 12.5 +59.3	97.3	18
19	20 54.9 +57.7	94.6	20 49.9 +58.0	94.9	20 44.5 +58.3	95.3	20 38.7 +58.6	95.7	20 32.6 +58.8	96.1	20 26.1 +58.9	96.4	20 19.1 +59.2	96.8	20 11.8 +59.4	97.2	19	20 11.8 +59.4	97.2	19	20 11.8 +59.4	97.2	19	20 11.8 +59.4	97.2	19
20	21 52.6 +57.6	94.3	21 47.9 +58.0	94.7	21 42.8 +58.2	95.1	21 37.3 +58.5	95.5	21 31.4 +58.7	95.9	21 25.0 +59.0	96.2	21 18.3 +59.2	96.6	21 11.2 +59.3	97.0	20	21 11.2 +59.3	97.0	20	21 11.2 +59.3	97.0	20	21 11.2 +59.3	97.0	20
21	22 50.2 +57.7	94.0	22 45.9 +57.7	94.4	22 41.0 +58.3	94.8	22 35.8 +58.5	95.2	22 30.1 +58.8	95.6	22 24.0 +59.0	96.0	22 17.5 +59.1	96.5	22 10.5 +59.4	96.9	21	22 10.5 +59.4	96.9	21	22 10.5 +59.4	96.9	21	22 10.5 +59.4	96.9	21
22	23 47.9 +57.6	93.7	23 43.8 +57.9	94.1	23 39.3 +58.2	94.5	23 34.3 +58.5	95.0	23 28.9 +58.7	95.4	23 23.0 +58.9	95.8	23 16.6 +59.2	96.3	23 09.9 +59.3	96.7	22	23 09.9 +59.3	96.7	22	23 09.9 +59.3	96.7	22	23 09.9 +59.3	96.7	22
23	24 45.5 +57.6	93.4	24 41.7 +57.9	93.8	24 37.5 +58.2	94.3	24 32.8 +58.4	94.7	24 27.6 +58.7	95.2	24 21.9 +58.9	95.6	24 15.8 +59.1	96.1	24 09.2 +59.3	96.5	23	24 09.2 +59.3	96.5	23	24 09.2 +59.3	96.5	23	24 09.2 +59.3	96.5	23
24	25 43.1 +57.5	93.1	25 39.6 +57.9	93.5	25 35.7 +58.0	94.0	25 31.2 +58.4	94.5	25 26.3 +58.7	95.0	25 20.8 +58.9	95.4	25 14.9 +59.1	95.9	25 08.5 +59.3	96.4	24	25 08.5 +59.3	96.4	24	25 08.5 +59.3	96.4	24	25 08.5 +59.3	96.4	24
25	26 40.6 +57.5	92.7	26 37.5 +57.8	93.2	26 33.8 +58.1	93.7	26 29.6 +58.4	94.2	26 25.0 +58.6	94.7	26 19.7 +58.9	95.2	26 14.0 +59.1	95.7	26 07.8 +59.3	96.2	25	26 07.8 +59.3	96.2	25	26 07.8 +59.3	96.2	25	26 07.8 +59.3	96.2	25
26	27 38.1 +57.4	92.4	27 35.3 +57.7	92.9	27 31.9 +58.1	93.5	27 28.0 +58.4	94.0	27 23.6 +58.6	94.5	27 18.6 +58.9	95.0	27 13.1 +59.1	95.5	27 07.1 +59.3	96.0	26	27 07.1 +59.3	96.0	26	27 07.1 +59.3	96.0	26	27 07.1 +59.3	96.0	26
27	28 35.5 +57.4	92.1	28 33.0 +57.8	92.6	28 30.0 +58.0	93.2	28 26.4 +58.3	93.7	28 22.2 +58.6	94.3	28 17.5 +58.8	94.8	28 12.2 +59.1	95.3	28 06.4 +59.2	95.9	27	28 06.4 +59.2	95.9	27	28 06.4 +59.2	95.9	27	28 06.4 +59.2	95.9	27
28	29 32.9 +57.3	91.8	29 30.8 +57.7	92.3	29 28.0 +58.1	92.9	29 24.7 +58.3	93.4	29 20.8 +58.6	94.0	29 16.3 +58.9	94.6	29 11.3 +59.0	95.1	29 05.6 +59.3	95.7	28	29 05.6 +59.3	95.7	28	29 05.6 +59.3	95.7	28	29 05.6 +59.3	95.7	28
29	30 30.2 +57.3	91.4	30 28.5 +57.6	92.0	30 26.1 +57.9	92.6	30 23.0 +58.3	93.2	30 19.4 +58.6	93.8	30 15.2 +58.8	94.3	30 10.3 +59.1	94.9	30 04.9 +59.2	95.5	29	30 04.9 +59.2	95.5	29	30 04.9 +59.2	95.5	29	30 04.9 +59.2	95.5	29
30	31 27.5 +57.3	91.1	31 26.1 +57.6	91.7	31 24.0 +57.9	92.3																				

LATITUDE CONTRARY NAME TO DECLINATION **L.H.A. 80°, 280°**

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z										
0	2 34.6 -58.1	99.7	0	2 24.5 -58.3	99.7	0	2 14.3 -58.5	99.7	0	2 04.1 -58.7	99.8	1 53.9 -58.9	99.8	1 43.7 -59.1	99.9	1 33.4 -59.3	99.9	1 23.1 -59.4	99.9	0 35.8 +59.4	79.8	0 35.8 +59.4	79.8	0	
1	1 36.5 -58.0	99.9	0	1 26.2 -58.3	99.9	0	1 15.8 -58.5	100.0	0	1 05.4 -58.7	100.0	0 55.0 -58.9	100.0	0 44.6 -59.2	100.0	0 34.1 -59.3	100.0	0 23.7 -59.5	100.0	0 35.2 +59.4	79.7	0 35.2 +59.4	79.7	1	
2	0 38.5 -58.0	100.2	0	0 27.9 -58.3	100.2	0	0 17.3 -58.5	100.2	0	0 06.7 -58.7	100.2	0 03.9 +59.0	79.8	0 14.6 +59.1	79.8	0 25.2 +59.3	79.8	0 35.8 +59.4	79.8	0 35.8 +59.4	79.8	2			
3	0 19.5 +58.0	79.6	0	0 30.4 +58.2	79.6	0	0 41.2 +58.5	79.6	0	0 52.0 +58.8	79.6	1 02.9 +58.9	79.6	1 13.7 +59.1	79.6	1 24.5 +59.2	79.7	1 35.2 +59.4	79.7	1 35.2 +59.4	79.7	3			
4	1 17.5 +58.0	79.3	1	1 28.6 +58.3	79.3	1	1 39.7 +58.5	79.4	1	1 50.8 +58.7	79.4	2 01.8 +58.9	79.4	2 12.8 +59.1	79.5	2 23.7 +59.3	79.5	2 34.6 +59.5	79.5	2 34.6 +59.5	79.5	4			
5	2 15.5 +58.0	79.1	2	2 26.9 +58.3	79.1	2	2 38.2 +58.5	79.1	2	2 49.5 +58.7	79.2	3 00.7 +59.0	79.2	3 11.9 +59.1	79.3	3 23.0 +59.3	79.3	3 34.1 +59.4	79.4	3 34.1 +59.4	79.4	5			
6	3 13.5 +58.1	78.8	3	3 25.2 +58.2	78.9	3	3 36.7 +58.5	78.9	3	3 48.2 +58.7	79.0	3 59.7 +58.9	79.1	4 11.0 +59.1	79.1	4 22.3 +59.3	79.2	4 33.5 +59.4	79.3	4 33.5 +59.4	79.3	6			
7	4 11.6 +58.0	78.5	4	4 23.4 +58.3	78.6	4	4 35.2 +58.5	78.7	4	4 46.9 +58.8	78.8	4 58.6 +58.9	78.9	5 10.1 +59.1	78.9	5 21.6 +59.3	79.0	5 32.9 +59.5	79.1	5 32.9 +59.5	79.1	7			
8	5 09.6 +58.0	78.3	5	5 21.7 +58.2	78.4	5	5 33.7 +58.5	78.5	5	5 45.7 +58.7	78.6	5 57.5 +58.9	78.7	6 09.2 +59.1	78.8	6 20.9 +59.2	78.9	6 32.4 +59.4	79.0	6 32.4 +59.4	79.0	8			
9	6 07.6 +57.9	78.0	6	6 19.9 +58.3	78.1	6	6 32.2 +58.5	78.3	6	6 44.4 +58.7	78.4	6 56.4 +58.9	78.5	7 08.3 +59.1	78.6	7 20.1 +59.3	78.7	7 31.8 +59.4	78.9	7 31.8 +59.4	78.9	9			
10	7 05.5 +58.0	77.8	7	7 18.2 +58.2	77.9	7	7 30.7 +58.5	78.0	7	7 43.1 +58.7	78.2	7 55.3 +58.9	78.3	8 07.4 +59.1	78.4	8 19.4 +59.3	78.6	8 31.2 +59.4	78.7	8 31.2 +59.4	78.7	10			
11	8 03.5 +58.0	77.5	8	8 16.4 +58.3	77.7	8	8 29.2 +58.5	77.8	8	8 41.8 +58.7	77.9	8 54.2 +58.9	78.1	9 06.5 +59.1	78.3	9 18.7 +59.2	78.4	9 30.6 +59.4	78.6	9 30.6 +59.4	78.6	11			
12	9 01.5 +58.0	77.3	9	9 14.7 +58.2	77.4	9	9 27.7 +58.4	77.6	9	9 40.5 +58.7	77.7	9 53.1 +58.9	77.9	10 05.6 +59.1	78.1	10 17.9 +59.3	78.3	10 30.0 +59.5	78.4	10 30.0 +59.5	78.4	12			
13	9 59.5 +57.9	77.0	10	10 12.9 +58.2	77.2	10	10 26.1 +58.5	77.3	10	10 39.2 +58.6	77.5	10 52.0 +58.9	77.7	11 04.7 +59.1	77.9	11 17.2 +59.2	78.1	11 29.5 +59.4	78.3	11 29.5 +59.4	78.3	13			
14	10 57.4 +57.9	76.7	11	11 11.1 +58.2	76.9	11	11 24.6 +58.4	77.1	11	11 37.8 +58.7	77.3	11 50.9 +58.9	77.5	12 03.8 +59.1	77.7	12 16.4 +59.3	77.9	12 28.9 +59.4	78.1	12 28.9 +59.4	78.1	14			
15	11 55.3 +58.0	76.5	12	10 9.3 +58.2	76.7	12	12 23.0 +58.4	76.9	12	13 36.5 +58.7	77.1	12 49.8 +58.9	77.3	13 02.9 +59.0	77.5	13 15.7 +59.2	77.8	13 28.3 +59.4	78.0	13 28.3 +59.4	78.0	15			
16	12 53.3 +57.9	76.2	13	12 0.7 +58.1	76.4	13	12 21.4 +58.5	76.7	13	13 35.2 +58.6	76.9	13 48.7 +58.8	77.1	14 01.9 +59.1	77.4	14 14.9 +59.3	77.6	14 27.7 +59.4	77.9	14 27.7 +59.4	77.9	16			
17	13 51.2 +57.9	75.9	14	14 05.6 +58.2	76.2	14	14 19.9 +58.4	76.4	14	14 33.8 +58.7	76.7	14 47.5 +58.9	76.9	15 01.0 +59.0	77.2	15 14.2 +59.2	77.4	15 27.1 +59.4	77.7	15 27.1 +59.4	77.7	17			
18	14 49.1 +57.8	75.7	15	15 03.8 +58.1	75.9	15	15 18.3 +58.3	76.2	15	15 32.5 +58.6	76.4	15 46.4 +58.8	76.7	16 00.0 +59.1	77.0	16 13.4 +59.2	77.3	16 26.5 +59.3	77.6	16 26.5 +59.3	77.6	18			
19	15 46.9 +57.9	75.4	16	16 01.9 +58.1	75.7	16	16 16.6 +58.4	75.9	16	16 31.1 +58.6	76.2	16 45.2 +58.8	76.5	16 59.1 +59.0	76.8	17 12.6 +59.2	77.1	17 25.8 +59.4	77.4	17 25.8 +59.4	77.4	19			
20	16 44.8 +57.8	75.1	17	17 0.0 +58.1	75.4	17	17 15.0 +58.4	75.7	17	17 29.7 +58.6	76.0	17 44.0 +58.9	76.3	17 58.1 +59.0	76.6	18 11.8 +59.2	76.9	18 25.2 +59.4	77.3	18 25.2 +59.4	77.3	20			
21	17 42.6 +57.8	74.8	18	18 58.1 +58.1	75.1	18	18 13.4 +58.3	75.5	18	18 28.3 +58.6	75.8	18 42.9 +58.8	76.1	18 57.1 +59.0	76.4	19 11.0 +59.2	76.8	19 24.6 +59.3	77.1	19 24.6 +59.3	77.1	21			
22	18 40.4 +57.8	74.5	19	18 56.2 +58.1	74.9	19	19 11.7 +58.3	75.2	19	19 26.9 +58.5	75.5	19 41.7 +58.7	75.9	19 56.1 +59.0	76.2	20 10.2 +59.2	76.6	20 23.9 +59.4	77.0	20 23.9 +59.4	77.0	22			
23	19 38.2 +57.7	74.3	19	19 54.3 +58.0	74.6	20	20 10.0 +58.3	75.0	20	20 25.4 +58.6	75.3	20 40.4 +58.8	75.7	20 55.1 +59.0	76.0	21 09.4 +59.2	76.4	21 23.3 +59.3	76.8	21 23.3 +59.3	76.8	23			
24	20 35.9 +57.7	74.0	20	20 52.3 +58.0	74.3	21	20 08.3 +58.3	74.7	21	21 24.0 +58.5	75.1	21 39.2 +58.8	75.5	21 54.1 +58.9	76.8	22 08.6 +59.1	76.2	22 22.6 +59.4	76.6	22 22.6 +59.4	76.6	24			
25	21 33.6 +57.7	73.7	21	21 50.3 +58.0	74.1	22	22 06.6 +58.2	74.4	22	22 22.5 +58.5	74.8	22 38.0 +58.7	75.2	22 53.0 +59.0	75.6	23 07.7 +59.2	76.1	23 22.0 +59.3	76.5	23 22.0 +59.3	76.5	25			
26	22 31.3 +57.7	73.4	22	22 48.3 +57.9	73.8	23	23 04.8 +58.3	74.2	23	23 21.0 +58.5	74.6	23 36.7 +58.7	75.0	23 52.0 +58.9	75.4	24 06.9 +59.1	75.9	24 21.3 +59.3	76.3	24 21.3 +59.3	76.3	26			
27	23 29.0 +57.6	73.1	23	23 46.2 +57.9	73.5	24	24 03.1 +58.2	73.9	24	24 19.5 +58.4	74.4	24 35.4 +58.7	74.8	24 50.9 +58.9	75.2	25 06.0 +59.1	75.7	25 20.6 +59.3	76.1	25 20.6 +59.3	76.1	27			
28	24 26.6 +57.6	72.8	24	24 41.1 +57.9	73.2	25	25 01.3 +58.1	73.7	25	25 17.9 +58.4	74.1	25 34.1 +58.7	74.6	25 49.8 +58.9	75.0	26 05.1 +59.1	75.5	26 19.9 +59.3	76.0	26 19.9 +59.3	76.0	28			
29	25 24.2 +57.5	72.5	25	25 42.0 +57.9	72.9	25	25 59.4 +58.2	73.4	26	26 16.3 +58.4	73.9	26 32.8 +58.6	74.3	26 48.7 +58.9	74.8	27 04.2 +59.1	75.3	27 19.2 +59.3	75.8	27 19.2 +59.3	75.8	29			
30	26 21.7 +57.5	72.1	26	26 39.9 +57.8	72.6	26	26 57.6 +58.1	73.1	27	27 14.7 +58.4	73.6	27 31.4 +58.7	74.1	27 47.6 +58.9	74.6	28 03.3 +59.1	75.1	28 18.5 +59.2	75.6	28 18.5 +59.2	75.6	30			
31	27 19.2 +57.5	71.8	27	27 37.7 +57.8	72.3	27	27 55.7 +58.0	72.8	28	28 13.1 +58.4	73.3	28 30.1 +58.6	73.9	28 46.5 +58.8	74.4	29 02.4 +59.0	74.9	29 17.7 +59.3	75.5	29 17.7 +59.3	75.5	31			
32	28 16.7 +57.4	71.5	28	28 35.5 +57.7	72.0	28	28 53.7 +58.0	72.5	29	29 11.5 +58.3	73.1	29 28.7 +58.5	73.6	29 45.3 +58.8	74.2	30 01.4 +59.1	74.7	30 17.0 +59.2	75.3	30 17.0 +59.2	75.3	32			
33	29 14.1 +57.3	71.2	29	29 33.2 +57.7	71.7	29	29 51.7 +58.0	72.2	30	30 09.8 +58.2	72.8	30 27.2 +58.6	73.4	30 44.1 +58.8	73.9	31 00.5 +59.0	74.5	31 16.2 +59.2	75.1	31 16.2 +59.2	75.1	33			
34	30 11.4 +57.3	70.8	30	30 30.9 +57.6	71.4	30	30 49.7 +58.0	72.0	31	30 80.0 +58.3	72.5	31 25.8 +58.5	73.1	31 42.9 +58.8	73.7	31 59.5 +59.0	74.3	32 15.4 +59.2	74.9	32 15.4 +59.2	74.9	34			
35	31 08.7 +57.3	70.5	31	31 28.5 +57.6	71.1	31	31 47.7 +57.9	71.6	32	32 06.3 +58.2	72.2	32 24.3 +58.5	72.8	32 41.7 +58.7	73.5	32 58.5 +58.9	74.1	33 14.6 +59.2	74.7	33 14.6 +59.2	74.7	35			
36	32 06.0 +57.2	70.1	32	32 26.1 +5																					

81°, 279° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	2 19.2 +58.0	98.7	2 10.1 +58.3	98.7	2 01.0 +58.5	98.8	1 51.8 +58.7	98.8	1 42.6 +59.0	98.8	1 33.4 +59.1	98.9	1 24.1 +59.3	98.9	1 14.9 +59.4	98.9	0	2 19.2 +58.0	98.7	2 10.1 +58.3	98.7	0
1	3 17.2 +58.0	98.4	3 08.4 +58.2	98.5	2 59.5 +58.5	98.6	2 50.5 +58.8	98.6	2 41.6 +58.9	98.6	2 32.5 +59.1	98.7	2 23.4 +59.3	98.7	2 14.3 +59.4	98.8	1	3 17.2 +58.0	98.4	3 08.4 +58.2	98.5	1
2	4 15.2 +58.0	98.2	4 06.6 +58.3	98.3	3 58.0 +58.5	98.3	3 49.3 +58.7	98.4	3 40.5 +58.9	98.5	3 31.6 +59.1	98.5	3 22.7 +59.3	98.6	3 13.7 +59.4	98.6	2	4 15.2 +58.0	98.2	4 06.6 +58.3	98.3	2
3	5 13.2 +58.0	97.9	5 04.9 +58.2	98.0	4 56.5 +58.5	98.1	4 48.0 +58.7	98.2	4 39.4 +58.9	98.3	4 30.7 +59.1	98.3	4 22.0 +59.2	98.4	4 13.1 +59.5	98.5	3	5 13.2 +58.0	97.9	5 04.9 +58.2	98.0	3
4	6 11.2 +58.0	97.7	6 03.1 +58.3	97.8	5 55.0 +58.5	97.9	5 46.7 +58.7	98.0	5 38.3 +58.9	98.1	5 29.8 +59.1	98.2	5 21.2 +59.3	98.3	5 12.6 +59.4	98.4	4	6 11.2 +58.0	97.7	6 03.1 +58.3	97.8	4
5	7 09.2 +58.0	97.4	7 01.4 +58.2	97.5	6 53.5 +58.4	97.7	6 45.4 +58.7	97.8	6 37.2 +58.9	97.9	6 28.9 +59.1	98.0	6 20.5 +59.3	98.1	6 12.0 +59.4	98.2	5	7 09.2 +58.0	97.4	7 01.4 +58.2	97.5	5
6	8 07.2 +57.9	97.2	7 59.6 +58.2	97.3	7 51.9 +58.5	97.4	7 44.1 +58.7	97.6	7 36.1 +58.9	97.7	7 28.0 +59.1	97.8	7 19.8 +59.2	98.0	7 11.4 +59.4	98.1	6	8 07.2 +57.9	97.2	7 59.6 +58.2	97.3	6
7	9 05.1 +58.0	96.9	8 57.8 +58.2	97.0	8 50.4 +58.5	97.2	8 42.8 +58.7	97.4	8 35.0 +58.9	97.5	8 27.1 +59.1	97.7	8 19.0 +59.3	97.8	8 10.8 +59.4	97.9	7	9 05.1 +58.0	96.9	8 57.8 +58.2	97.0	7
8	10 03.1 +57.9	96.6	9 56.0 +58.2	96.8	9 48.9 +58.4	97.0	9 41.5 +58.7	97.1	9 33.9 +58.9	97.3	9 26.2 +59.1	97.5	9 18.3 +59.3	97.6	9 10.2 +59.5	97.8	8	10 03.1 +57.9	96.6	9 56.0 +58.2	96.8	8
9	11 01.0 +57.9	96.4	10 54.2 +58.2	96.6	10 47.3 +58.4	96.7	10 40.2 +58.6	96.9	10 32.8 +58.9	97.1	10 25.3 +59.1	97.3	10 17.6 +59.2	97.5	10 09.7 +59.4	97.7	9	11 01.0 +57.9	96.4	10 54.2 +58.2	96.6	9
10	11 58.9 +57.9	96.1	11 52.4 +58.2	96.3	11 45.7 +58.5	96.5	11 38.8 +58.7	96.7	11 31.7 +58.9	96.9	11 24.4 +59.0	97.1	11 16.8 +59.3	97.3	11 09.1 +59.4	97.5	10	11 58.9 +57.9	96.1	11 52.4 +58.2	96.3	10
11	12 56.8 +57.9	95.8	12 50.6 +58.2	96.1	12 44.2 +58.4	96.3	12 37.5 +58.6	96.5	12 30.6 +58.8	96.7	12 23.4 +59.1	96.9	12 16.1 +59.2	97.2	12 08.5 +59.4	97.4	11	12 56.8 +57.9	95.8	12 50.6 +58.2	96.1	11
12	13 54.7 +57.9	95.6	13 48.8 +58.1	95.8	13 42.6 +58.4	96.0	13 36.1 +58.7	96.3	13 29.4 +58.9	96.5	13 22.5 +59.1	96.8	13 15.3 +59.2	97.0	13 07.9 +59.4	97.2	12	13 54.7 +57.9	95.6	13 48.8 +58.1	95.8	12
13	14 52.6 +57.8	95.3	14 46.9 +58.2	95.5	14 41.0 +58.4	95.8	14 34.8 +58.6	96.1	14 28.3 +58.9	96.3	14 21.6 +59.0	96.6	14 14.5 +59.3	96.8	14 07.3 +59.4	97.1	13	14 52.6 +57.8	95.3	15 45.1 +58.1	95.5	13
14	15 50.4 +57.9	95.0	15 45.1 +58.1	95.3	15 39.4 +58.4	95.6	15 33.4 +58.6	95.8	15 27.2 +58.8	96.1	15 20.6 +59.0	96.4	15 13.8 +59.2	96.7	15 06.7 +59.4	96.9	14	15 50.4 +57.9	95.0	15 45.1 +58.1	95.3	14
15	16 48.3 +57.8	94.7	16 43.2 +58.1	95.0	16 37.8 +58.3	95.3	16 32.0 +58.6	95.6	16 26.0 +58.8	95.9	16 19.6 +59.1	96.2	16 13.0 +59.2	96.5	16 06.1 +59.3	96.8	15	16 48.3 +57.8	94.7	16 43.2 +58.1	95.0	15
16	17 46.1 +57.8	94.5	17 41.3 +58.0	94.8	17 36.1 +58.3	95.1	17 30.6 +58.6	95.4	17 24.8 +58.8	95.7	17 18.7 +59.0	96.0	17 12.2 +59.2	96.3	17 05.4 +59.4	96.6	16	17 46.1 +57.8	94.5	17 41.3 +58.0	94.8	16
17	18 43.9 +57.7	94.2	18 39.3 +58.1	94.5	18 34.4 +58.4	94.8	18 29.2 +58.6	95.2	18 23.6 +58.8	95.5	18 17.7 +59.0	95.8	18 11.4 +59.2	96.2	18 04.8 +59.4	96.5	17	18 43.9 +57.7	94.2	18 39.3 +58.1	94.5	17
18	19 41.6 +57.8	93.9	19 37.4 +58.0	94.2	19 32.8 +58.3	94.6	19 27.8 +58.5	94.9	19 22.4 +58.8	95.3	19 16.7 +59.0	95.6	19 10.6 +59.2	96.0	19 04.2 +59.3	96.3	18	19 41.6 +57.8	93.9	19 37.4 +58.0	94.2	18
19	20 39.4 +57.7	93.6	20 35.4 +58.0	94.0	20 31.1 +58.2	94.3	20 26.3 +58.6	94.7	20 21.2 +58.8	95.1	20 15.7 +59.0	95.5	20 09.8 +59.2	95.8	20 03.5 +59.4	96.2	19	20 39.4 +57.7	93.6	20 35.4 +58.0	94.0	19
20	21 37.1 +57.6	93.3	21 33.4 +58.0	93.7	21 29.3 +58.3	94.1	21 24.9 +58.5	94.5	21 20.0 +58.7	94.9	21 14.7 +58.9	95.3	21 09.0 +59.1	95.6	21 02.9 +59.3	96.0	20	21 37.1 +57.6	93.3	21 33.4 +58.0	93.7	20
21	22 34.7 +57.7	93.0	22 31.4 +57.9	93.4	22 27.6 +58.2	93.8	22 23.4 +58.5	94.2	22 18.7 +58.8	94.6	22 13.6 +59.0	95.1	22 08.1 +59.2	95.5	22 02.2 +59.4	95.9	21	22 34.7 +57.7	93.0	22 31.4 +57.9	93.4	21
22	23 32.4 +57.6	92.7	23 29.3 +57.9	93.1	23 25.8 +58.2	93.6	23 21.9 +58.4	94.0	23 17.5 +58.7	94.4	23 12.6 +58.9	94.9	23 07.3 +59.1	95.3	23 01.6 +59.3	95.7	22	23 32.4 +57.6	92.7	23 29.3 +57.9	93.1	22
23	24 30.0 +57.5	92.4	24 27.2 +57.9	92.8	24 24.0 +58.2	93.3	24 20.3 +58.5	93.8	24 16.2 +58.7	94.2	24 11.5 +59.0	94.7	24 06.4 +59.2	95.1	24 00.9 +59.3	95.5	23	24 30.0 +57.5	92.4	24 27.2 +57.9	92.8	23
24	25 27.5 +57.6	92.1	25 25.1 +57.9	92.6	25 22.2 +58.1	93.0	25 18.8 +58.4	93.5	25 14.9 +58.6	94.0	25 10.5 +58.9	94.4	25 05.6 +59.1	94.9	25 00.2 +59.3	95.4	24	25 27.5 +57.6	92.1	25 25.1 +57.9	92.6	24
25	26 25.1 +57.4	91.8	26 23.0 +57.8	92.3	26 20.3 +58.1	92.8	26 17.2 +58.4	93.2	26 13.5 +58.7	93.7	26 09.4 +58.8	94.2	26 04.7 +59.1	94.7	25 59.5 +59.3	95.2	25	26 25.1 +57.4	91.8	26 23.0 +57.8	92.3	25
26	27 22.5 +57.5	91.4	27 20.8 +57.7	92.0	27 18.4 +58.1	92.5	27 15.6 +58.3	93.0	27 12.2 +58.6	93.5	27 08.2 +58.9	94.0	27 03.8 +59.1	94.5	26 58.8 +59.3	95.0	26	27 22.5 +57.5	91.4	27 20.8 +57.7	92.0	26
27	28 20.0 +57.4	91.1	28 18.5 +57.8	91.7	28 16.5 +58.1	92.2	28 13.9 +58.4	92.7	28 10.8 +58.6	93.3	28 07.1 +58.9	93.8	28 02.9 +59.0	94.3	27 58.1 +59.2	94.9	27	28 20.0 +57.4	91.1	28 18.5 +57.8	91.7	27
28	29 17.4 +57.3	90.8	29 16.3 +57.6	91.3	29 14.6 +58.0	91.9	29 12.3 +58.3	92.5	29 09.4 +58.6	93.0	29 06.0 +58.8	93.6	29 01.9 +59.1	94.1	28 57.3 +59.3	94.7	28	29 17.4 +57.3	90.8	29 16.3 +57.6	91.3	28
29	30 14.7 +57.3	90.4	30 13.9 +57.7	91.0	30 12.6 +57.9	91.6	30 10.6 +58.2	92.2	30 08.0 +58.5	92.8	30 04.8 +58.7	93.3	30 01.0 +59.0	93.9	29 56.6 +59.2	94.5	29 14.7 +57.3	90.4	29 13.9 +57.7	91.0	29	
30	31 12.0 +57.2	90.1	31 11.6 +57.6	90.7	31 10.5 +57.9	91.3	31 08.8 +58.3	91.9	31 06.5 +58.5	92.5	31 03.6 +58.7	93.1	31 00.0 +59.0	93.7	30 55.8 +59.2	94.3	30	31 12.0 +57.2	90.1	31 11.6 +57.6	90.7	30
31	32 09.2 +57.2	89.7	32 09.2 +57.5	90.4	32 08.4 +57.9	91.0	32 07.1 +58.2	91.6	32 05.0 +58.5	92.3	32 02.3 +58.7	92.9	31 59.0 +59.0	93.5	31 55.0 +59.2	94.1	31	32 09.2 +57.2	89.7	32 09.2 +57.5	90.4	31
32	33 06.4 +57.1	89.4	33 06.7 +57.5	90.0	33 06.3 +57.8	90.7	33 05.3 +58.1	91.3	33 03.5 +58.5	92.0	33 01.1 +58.7	92.6	32 58.0 +59.0	93.3	32 54.2 +59.2	93.9	32	33 06.4 +57.1	89.4	33 06.7 +57.5	90.0	32
33	34 03.5 +57.0	89.0	34 04.2 +57.4	89.7	34 04.1 +57.8	90.4	34 03.4 +58.1	91.0	34 02.0 +58.4	91.7	33 59.8 +58.7	92.4	33 57.0 +58.9	93.1	33 53.4 +59.2	93.7	33	34 03.5 +57.0	89.0	34 04.2 +57.4	89.7	33
34	35 00.5 +57.0	88.6	35 01.6 +57.4	89.3	35 01.9 +57.7	89.8	35 04.5 +57.3	86.8	35 03.9 +57.7	87.8	35 01.4 +57.2	88.9	35 41.4 +58.1	89.9	35							

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 81° , 279°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z																						
0	2 19.2 -58.0	98.7		2 10.1 -58.2	98.7		2 01.0 -58.5	98.8		1 51.8 -58.7	98.8		1 42.6 -58.9	98.8		1 33.4 -59.1	98.9		1 24.1 -59.2	98.9		1 14.9 -59.5	98.9		0
1	1 21.2 -58.0	99.0		1 11.9 -58.3	99.0		1 02.5 -58.5	99.0		0 53.1 -58.7	99.0		0 43.7 -58.9	99.0		0 34.3 -59.1	99.0		0 24.9 -59.3	99.0		0 15.4 -59.4	99.1		1
2	0 23.2 -58.0	99.2		0 13.6 -58.3	99.2		0 04.0 -58.5	99.2		0 05.6 +58.7	80.8		0 15.2 +58.9	80.8		0 24.8 +59.1	80.8		0 34.4 +59.3	80.8		0 44.0 +59.4	80.8		2
3	0 34.8 +58.0	80.5		0 44.7 +58.2	80.5		0 54.5 +58.5	80.6		1 04.3 +58.8	80.6		1 14.1 +59.0	80.6		1 23.9 +59.1	80.6		1 33.7 +59.3	80.6		1 43.4 +59.5	80.7		3
4	1 32.8 +58.0	80.3		1 42.9 +58.3	80.3		1 53.0 +58.5	80.3		2 03.1 +58.7	80.4		2 13.1 +58.9	80.4		2 23.0 +59.2	80.4		2 33.0 +59.3	80.5		2 42.9 +59.4	80.5		4
5	2 30.8 +58.0	80.0		2 41.2 +58.2	80.1		2 51.5 +58.5	80.1		3 01.8 +58.7	80.2		3 12.0 +58.9	80.2		3 22.2 +59.1	80.3		3 32.3 +59.2	80.3		3 42.3 +59.4	80.4		5
6	3 28.8 +58.0	79.8		3 39.4 +58.3	79.8		3 50.0 +58.5	79.9		4 00.5 +58.7	80.0		4 10.9 +58.9	80.0		4 21.3 +59.1	80.1		4 31.5 +59.3	80.2		4 41.7 +59.5	80.3		6
7	4 26.8 +58.0	79.5		4 37.7 +58.2	79.6		4 48.5 +58.5	79.7		4 59.2 +58.7	79.8		5 09.8 +58.9	79.8		5 20.4 +59.1	79.9		5 30.8 +59.3	80.0		5 41.2 +59.4	80.1		7
8	5 24.8 +58.0	79.3		5 35.9 +58.3	79.3		5 47.0 +58.5	79.4		5 57.9 +58.7	79.5		6 08.7 +59.0	79.7		6 19.5 +59.1	79.8		6 30.1 +59.2	79.9		6 40.6 +59.4	80.0		8
9	6 22.8 +58.0	79.0		6 34.2 +58.2	79.1		6 45.5 +58.4	79.2		6 56.6 +58.7	79.3		7 07.7 +58.9	79.5		7 18.6 +59.1	79.6		7 29.3 +59.3	79.7		7 40.0 +59.4	79.8		9
10	7 20.8 +57.9	78.7		7 32.4 +58.2	78.9		7 43.9 +58.5	79.0		7 55.3 +58.7	79.1		8 06.6 +58.9	79.3		8 17.7 +59.0	79.4		8 28.6 +59.3	79.6		8 39.4 +59.4	79.7		10
11	8 18.7 +58.0	78.5		8 30.6 +58.3	78.6		8 42.4 +58.5	78.8		8 54.0 +58.7	78.9		9 05.5 +58.9	79.1		9 16.7 +59.1	79.2		9 27.9 +59.2	79.4		9 38.8 +59.4	79.6		11
12	9 16.7 +57.9	78.2		9 28.9 +58.2	78.4		9 40.9 +58.4	78.5		9 52.7 +58.7	78.7		10 04.4 +58.8	78.9		10 15.8 +59.1	79.1		10 27.1 +59.3	79.2		10 38.2 +59.5	79.4		12
13	10 14.6 +58.0	77.9		10 27.1 +58.2	78.1		10 39.3 +58.5	78.3		10 51.4 +58.6	78.5		11 03.2 +58.9	78.7		11 14.9 +59.1	78.9		11 26.4 +59.2	79.1		11 37.7 +59.4	79.3		13
14	11 12.6 +57.9	77.7		11 25.3 +58.1	77.9		11 37.8 +58.4	78.1		11 50.0 +58.7	78.3		12 02.1 +58.9	78.5		12 14.0 +59.0	78.7		12 25.6 +59.3	78.9		12 37.1 +59.4	79.1		14
15	12 10.5 +57.9	77.4		12 23.4 +58.2	77.6		12 36.2 +58.4	77.8		12 48.7 +58.6	78.1		13 01.0 +58.9	78.3		13 13.0 +59.1	78.5		13 24.9 +59.2	78.8		13 36.5 +59.3	79.0		15
16	13 08.4 +57.9	77.1		13 21.6 +58.2	77.4		13 34.6 +58.4	77.6		13 47.3 +58.7	77.9		13 59.9 +58.8	78.1		14 12.1 +59.1	78.3		14 24.1 +59.2	78.6		14 35.8 +59.4	78.8		16
17	14 06.3 +57.8	76.9		14 19.8 +58.1	77.1		14 33.0 +58.4	77.4		14 46.0 +58.6	77.6		14 58.7 +58.8	77.9		15 11.2 +59.0	78.2		15 23.3 +59.3	78.4		15 35.2 +59.4	78.7		17
18	15 04.1 +57.9	76.6		15 17.9 +58.1	76.9		15 31.4 +58.4	77.1		15 44.6 +58.6	77.4		15 57.5 +58.9	77.7		16 10.2 +59.0	78.0		16 22.6 +59.2	78.3		16 34.6 +59.4	78.5		18
19	16 02.0 +57.8	76.3		16 16.0 +58.1	76.6		16 29.8 +58.3	76.9		16 43.2 +58.6	77.2		16 56.4 +58.8	77.5		17 09.2 +59.0	77.8		17 21.8 +59.2	78.1		17 34.0 +59.4	78.4		19
20	16 59.8 +57.8	76.1		17 14.1 +58.1	76.4		17 28.1 +58.4	76.7		17 41.8 +58.6	77.0		17 55.2 +58.8	77.3		18 08.2 +59.1	77.6		18 21.0 +59.2	77.9		18 33.4 +59.3	78.2		20
21	17 57.6 +57.8	75.8		18 12.2 +58.1	76.1		18 26.5 +58.3	76.4		18 40.4 +58.6	76.7		18 54.0 +58.8	77.1		19 07.3 +59.0	77.4		19 20.2 +59.2	77.7		19 32.7 +59.4	78.1		21
22	18 55.4 +57.8	75.5		19 10.3 +58.0	75.8		19 24.8 +58.3	76.2		19 39.0 +58.5	76.5		19 52.8 +58.8	76.9		20 06.3 +58.9	77.2		20 19.4 +59.1	77.6		20 32.1 +59.3	77.9		22
23	19 53.2 +57.7	75.2		20 08.3 +58.0	75.6		20 23.1 +58.3	75.9		20 37.5 +58.5	76.3		20 51.6 +58.7	76.6		21 05.2 +59.0	77.0		21 18.5 +59.2	77.4		21 31.4 +59.4	77.8		23
24	20 50.9 +57.7	74.9		21 06.3 +58.0	75.3		21 24.2 +58.4	75.7		21 36.0 +58.5	76.0		21 50.3 +58.8	76.4		22 04.2 +59.0	76.8		22 17.7 +59.1	77.2		22 30.8 +59.3	77.6		24
25	21 48.6 +57.6	74.6		22 04.3 +58.0	75.0		22 19.6 +58.3	75.4		22 34.5 +58.5	75.8		22 49.1 +58.7	76.2		23 03.2 +58.9	76.6		23 16.8 +59.2	77.0		23 30.1 +59.3	77.5		25
26	22 46.2 +57.7	74.3		23 02.3 +57.9	74.7		23 17.9 +58.2	75.1		23 33.0 +58.5	75.6		23 47.8 +58.7	76.0		24 02.1 +58.9	76.4		24 16.0 +59.1	76.8		24 29.4 +59.3	77.3		26
27	23 43.9 +57.6	74.0		24 00.2 +57.9	74.4		24 16.1 +58.1	74.9		24 31.5 +58.4	75.3		24 46.5 +58.7	75.8		25 01.0 +58.9	76.2		25 15.1 +59.1	76.7		25 28.7 +59.3	77.1		27
28	24 41.5 +57.5	73.7		24 58.1 +57.8	74.1		25 14.2 +58.2	74.6		25 29.9 +58.5	75.1		25 45.2 +58.6	75.5		25 59.9 +58.9	76.0		26 14.2 +59.1	76.5		26 28.0 +59.3	77.0		28
29	25 39.0 +57.5	73.4		25 55.9 +57.9	73.9		26 12.4 +58.1	74.3		26 28.4 +58.3	74.8		26 43.8 +58.7	75.3		26 58.8 +58.9	75.8		27 13.3 +59.1	76.3		27 23.3 +59.3	76.8		29
30	26 36.5 +57.5	73.1		26 53.8 +57.7	73.6		27 10.5 +58.1	74.0		27 26.7 +58.4	74.5		27 42.5 +58.6	75.1		27 57.7 +58.8	75.6		28 12.4 +59.1	76.1		28 26.6 +59.2	76.6		30
31	27 34.0 +57.4	72.8		27 51.5 +57.8	73.3		28 08.6 +58.0	73.8		28 25.1 +58.3	74.3		28 41.1 +58.6	74.8		28 56.5 +58.9	75.3		29 11.5 +59.0	75.9		29 25.8 +59.3	76.4		31
32	28 31.4 +57.4	72.4		28 49.3 +57.7	72.9		29 06.6 +58.0	73.5		29 23.4 +58.3	74.0		29 39.7 +58.5	74.6		29 55.4 +58.8	75.1		30 10.5 +59.0	75.7		30 21.4 +59.2	76.2		32
33	29 28.8 +57.3	72.1		29 47.0 +57.7	72.6		30 04.6 +58.0	73.2		30 21.7 +58.3	73.7		30 38.2 +58.6	74.3		30 54.2 +58.7	74.9		31 09.5 +59.0	75.5		31 24.3 +59.2	76.1		33
34	30 26.1 +57.3	71.8		30 44.7 +57.6	72.3		31 02.6 +57.9	72.9		31 20.0 +58.2	73.5		31 36.8 +58.5	74.1		31 52.9 +58.8	74.8		32 08.5 +59.0	75.3		32 23.5 +59.2	75.9		34
35	31 23.4 +57.2	71.4		31 42.3 +57.5	72.0		32 00.5 +57.9	72.6		32 18.2 +58.2	73.2		32 35.3 +58.4	73.8		32 51.7 +58.7	74.4		33 07.5 +59.0	75.0		33 22.7 +59.2	75.7		35
36	32 20.6 +57.2	71.0		32 39.8 +57.5	71.7		32 58.4 +57.8	72.3		33 16.4 +58.1	72.9		33 33.7 +58.4	73.5		33 50.4 +58.7	74.2		34 06.5 +58.9	74.8		34 21.9 +59.1	75.5		36
37	33 17.8 +57.1	70.7		33 37.3 +57.5	71.3		33 56.2 +57.8	71.9		34 14.5 +58.1	72.6		34 32.1 +58.4	73.2		34 49.1 +58.7	73.9		35 05.4 +58.9	74.6		35 21.0 +59.1	75.3		37
38	34 14.9 +57.0	70.3		34 34.8 +57.4	71.0																				

82°, 278° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	2 03.9 +57.9	97.7	1 55.8 +58.2	97.8	1 47.6 +58.5	97.8	1 39.5 +58.7	97.8	1 31.3 +58.9	97.9	1 23.1 +59.1	97.9	1 14.9 +59.2	97.9	1 06.6 +59.4	97.9	0	0	0	0	0	0	0	0	
1	3 01.8 +58.0	97.5	2 54.0 +58.3	97.5	2 46.1 +58.5	97.6	2 38.2 +58.7	97.6	2 30.2 +58.9	97.7	2 22.2 +59.1	97.7	2 14.1 +59.3	97.7	2 06.0 +59.4	97.8	1	0	0	0	0	0	0	0	
2	3 59.8 +58.0	97.2	3 52.3 +58.2	97.3	3 44.6 +58.5	97.4	3 36.9 +58.7	97.4	3 29.1 +58.9	97.5	3 21.3 +59.1	97.5	3 13.4 +59.3	97.6	3 05.4 +59.5	97.6	2	0	0	0	0	0	0	0	
3	4 57.8 +58.0	97.0	4 50.5 +58.2	97.0	4 43.1 +58.5	97.1	4 35.6 +58.7	97.2	4 28.0 +59.0	97.3	4 20.4 +59.1	97.4	4 12.7 +59.2	97.4	4 04.9 +59.4	97.5	3	0	0	0	0	0	0	0	
4	5 55.8 +58.0	96.7	5 48.7 +58.3	96.8	5 41.6 +58.5	96.9	5 34.3 +58.7	97.0	5 27.0 +58.9	97.1	5 19.5 +59.1	97.2	5 11.9 +59.3	97.3	5 04.3 +59.4	97.4	4	0	0	0	0	0	0	0	
5	6 53.8 +57.9	96.4	6 47.0 +58.2	96.6	6 40.1 +58.4	96.7	6 33.0 +58.7	96.8	6 25.9 +58.9	96.9	6 18.6 +59.1	97.0	6 11.2 +59.3	97.1	6 03.7 +59.4	97.2	5	0	0	0	0	0	0	0	
6	7 51.7 +58.0	96.2	7 45.2 +58.2	96.3	7 38.5 +58.5	96.5	7 31.7 +58.7	96.6	7 24.8 +58.9	96.7	7 17.7 +59.1	96.8	7 10.5 +59.2	97.0	7 03.1 +59.5	97.1	6	0	0	0	0	0	0	0	
7	8 49.7 +57.9	95.9	8 43.4 +58.2	96.1	8 37.0 +58.4	96.2	8 30.4 +58.7	96.4	8 23.7 +58.9	96.5	8 16.8 +59.1	96.7	8 09.7 +59.3	96.8	8 02.6 +59.4	97.0	7	0	0	0	0	0	0	0	
8	9 47.6 +58.0	95.7	9 41.6 +58.2	95.8	9 35.4 +58.5	96.0	9 29.1 +58.7	96.2	9 22.6 +58.8	96.3	9 15.9 +59.0	96.5	9 09.0 +59.3	96.7	9 02.0 +59.4	96.8	8	0	0	0	0	0	0	0	
9	10 45.6 +57.9	95.4	10 39.8 +58.2	95.6	10 33.9 +58.4	95.8	10 27.8 +58.6	95.9	10 21.4 +58.9	96.1	10 14.9 +59.1	96.3	10 08.3 +59.2	96.5	10 01.4 +59.4	96.7	9	0	0	0	0	0	0	0	
10	11 43.5 +57.9	95.1	11 38.0 +58.2	95.3	11 32.3 +58.4	95.5	11 26.4 +58.7	95.7	11 20.3 +58.9	95.9	11 14.0 +59.1	96.1	11 07.5 +59.2	96.3	11 00.8 +59.4	96.5	10	0	0	0	0	0	0	0	
11	12 41.4 +57.8	94.9	12 36.2 +58.1	95.1	12 30.7 +58.5	95.3	12 25.1 +58.6	95.5	12 19.2 +58.9	95.7	12 13.1 +59.0	96.0	12 06.7 +59.3	96.2	12 00.2 +59.4	96.4	11	0	0	0	0	0	0	0	
12	13 39.2 +57.9	94.6	13 34.3 +58.2	94.8	13 29.2 +58.4	95.1	13 23.7 +58.7	95.3	13 18.1 +58.8	95.5	13 12.1 +59.1	95.8	13 06.0 +59.2	96.0	12 59.6 +59.4	96.2	12	0	0	0	0	0	0	0	
13	14 37.1 +57.9	94.3	14 32.5 +58.1	94.6	14 27.6 +58.3	94.8	14 22.4 +58.6	95.1	14 16.9 +58.9	95.3	14 11.2 +59.0	95.6	14 05.2 +59.2	95.8	13 59.0 +59.4	96.1	13	0	0	0	0	0	0	0	
14	15 35.0 +57.8	94.0	15 30.6 +58.1	94.3	15 25.9 +58.4	94.6	15 21.0 +58.6	94.9	15 15.8 +58.8	95.1	15 10.2 +59.1	95.4	15 04.4 +59.3	95.7	14 58.4 +59.4	95.9	14	0	0	0	0	0	0	0	
15	16 32.8 +57.8	93.8	16 28.7 +58.1	94.1	16 24.3 +58.4	94.4	16 19.6 +58.6	94.6	16 14.6 +58.8	94.9	16 09.3 +59.0	95.2	16 03.7 +59.2	95.5	15 57.8 +59.3	95.8	15	0	0	0	0	0	0	0	
16	17 30.6 +57.8	93.5	17 26.8 +58.1	93.8	17 22.7 +58.3	94.1	17 18.2 +58.6	94.4	17 13.4 +58.8	94.7	17 08.3 +58.9	95.0	17 02.9 +59.2	95.3	16 57.1 +59.4	95.6	16	0	0	0	0	0	0	0	
17	18 28.4 +57.7	93.2	18 24.9 +58.0	93.5	18 21.0 +58.3	93.9	18 16.8 +58.5	94.2	18 12.2 +58.8	94.5	18 07.3 +59.0	94.8	18 02.1 +59.2	95.2	17 56.5 +59.4	95.5	17	0	0	0	0	0	0	0	
18	19 26.1 +57.8	92.9	19 22.9 +58.0	93.3	19 19.3 +58.3	93.6	19 15.3 +58.6	94.0	19 11.0 +58.8	94.3	19 06.3 +59.0	94.7	19 01.3 +59.2	95.0	18 55.9 +59.3	95.3	18	0	0	0	0	0	0	0	
19	20 23.9 +57.7	92.6	20 20.9 +58.0	93.0	20 17.6 +58.3	93.4	20 13.9 +58.5	93.7	20 09.8 +58.8	94.1	20 05.3 +59.0	94.5	20 00.5 +59.1	94.8	19 55.2 +59.4	95.2	19	0	0	0	0	0	0	0	
20	21 21.6 +57.6	92.3	21 18.9 +58.0	92.7	21 15.9 +58.2	93.1	21 12.4 +58.5	93.5	21 08.6 +58.7	93.9	21 04.3 +59.0	94.3	20 59.6 +59.2	94.6	20 54.6 +59.3	95.0	20	0	0	0	0	0	0	0	
21	22 19.2 +57.7	92.0	22 16.9 +57.9	92.4	22 14.1 +58.2	92.8	22 10.9 +58.5	93.3	22 07.3 +58.7	93.7	22 03.3 +58.9	94.1	21 58.8 +59.1	94.5	21 53.9 +59.3	94.9	21	0	0	0	0	0	0	0	
22	23 16.9 +57.6	91.7	23 14.8 +57.9	92.2	23 12.3 +58.2	92.6	23 09.4 +58.5	93.0	23 06.0 +58.7	93.4	23 02.2 +58.9	93.9	22 57.9 +59.2	94.3	22 53.2 +59.4	94.7	22	0	0	0	0	0	0	0	
23	24 14.5 +57.5	91.4	24 12.7 +57.9	91.9	24 10.5 +58.2	92.3	24 07.9 +58.4	92.8	24 04.7 +58.7	93.2	24 01.1 +59.0	93.7	23 57.1 +59.1	94.1	23 52.6 +59.3	94.5	23	0	0	0	0	0	0	0	
24	25 12.0 +57.5	91.1	25 10.6 +57.9	91.6	25 08.7 +58.1	92.1	25 06.3 +58.4	92.5	25 03.4 +58.7	93.0	25 00.1 +58.9	93.5	24 56.2 +59.1	93.9	24 51.9 +59.3	94.4	24	0	0	0	0	0	0	0	
25	26 09.5 +57.5	90.8	26 08.5 +57.8	91.3	26 06.8 +58.2	91.8	26 04.7 +58.4	92.3	26 02.1 +58.7	92.8	25 59.0 +58.8	93.2	25 55.3 +59.1	93.7	25 51.2 +59.3	94.2	25	0	0	0	0	0	0	0	
26	27 07.0 +57.5	90.5	27 06.3 +57.7	91.0	27 05.0 +58.0	91.5	27 03.1 +58.4	92.0	27 00.8 +58.6	92.5	26 57.8 +58.9	93.0	26 54.4 +59.1	93.5	26 50.5 +59.2	94.0	26	0	0	0	0	0	0	0	
27	28 04.5 +57.3	90.1	28 04.0 +57.7	90.7	28 03.0 +58.1	91.2	28 01.5 +58.3	91.7	27 59.4 +58.6	92.3	27 56.7 +58.9	92.8	27 53.5 +59.1	93.3	27 49.7 +59.3	93.9	27	0	0	0	0	0	0	0	
28	29 01.8 +57.4	89.8	29 01.7 +57.7	90.4	29 01.1 +58.0	90.9	28 59.8 +58.3	91.5	28 58.0 +58.5	92.0	28 55.6 +58.8	92.6	28 52.6 +59.0	93.1	28 49.0 +59.2	93.7	28	0	0	0	0	0	0	0	
29	29 59.2 +57.3	89.5	29 59.4 +57.7	90.1	29 59.1 +57.9	90.6	29 58.1 +58.3	91.2	29 56.5 +58.6	91.8	29 54.4 +58.9	92.4	29 51.6 +59.0	92.9	29 48.2 +59.3	93.5	29	0	0	0	0	0	0	0	
30	30 56.5 +57.2	89.1	30 57.1 +57.6	89.7	30 57.0 +58.0	90.3	30 56.4 +58.2	90.9	30 55.1 +58.5	91.5	30 53.2 +58.7	92.1	30 50.6 +59.0	92.7	30 47.5 +59.2	93.3	30	0	0	0	0	0	0	0	
31	31 53.7 +57.2	88.8	31 54.7 +57.5	89.4	31 55.0 +57.8	90.0	31 54.6 +58.2	90.6	31 53.6 +58.5	91.3	31 51.9 +58.8	91.9	31 49.6 +59.0	92.5	31 46.7 +59.2	93.1	31	0	0	0	0	0	0	0	
32	32 50.9 +57.1	88.4	32 52.2 +57.5	89.1	32 52.8 +57.9	89.7	32 52.8 +58.1	90.4	32 52.1 +58.4	91.0	32 50.7 +58.7	91.7	32 48.6 +59.0	92.3	32 45.9 +59.2	92.9	32	0	0	0	0	0	0	0	
33	33 48.0 +57.0	88.1	33 49.7 +57.4	88.7	33 50.7 +57.7	89.4	33 50.9 +58.1	90.1	33 50.5 +58.4	90.7	33 49.4 +58.7	91.4	33 47.6 +58.9	92.1	33 45.1 +59.1	92.7	33	0	0	0	0	0	0	0	
34	34 45.0 +57.0	87.7	34 47.1 +57.3	88.4	34 48.4 +57.7	89.1	34 49.0 +58.1	89.8	34 48.9 +58.4	90.5	34 48.1 +58.7	91.2	34 46.5 +58.9	91.8	34 44.2 +59.1	92.5	34	0	0	0	0	0	0	0	
35	35 42.0 +56.9	87.3	35 44.4 +57.3	88.0	35 46.1 +57.7	88.7	35 47.1 +58.0	89.5	35 47.3 +58.3	90.2	35 46.7 +58.7	90.9	35 45.4 +58.9	91.6	35 43.4 +59.1	92.3	35	0	0	0	0	0	0	0	
36	36 38.9 +56.8	86.9	36 41.7 +57.3	87.6	36 43.8 +57.6	88.4	36 45.1 +58.0	89.1	36 45.6 +58.3	89.9	36 45.4 +58.6														

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 82°, 278°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z																						
0	2 03.9 -58.0	97.7		1 55.8 -58.3	97.8		1 47.6 -58.4	97.8		1 39.5 -58.7	97.8		1 31.3 -58.9	97.9		1 23.1 -59.1	97.9		1 14.9 -59.3	97.9		1 06.6 -59.4	97.9		0
1	1 05.9 -58.0	98.0		0 57.5 -58.2	98.0		0 49.2 -58.5	98.0		0 40.8 -58.7	98.0		0 32.4 -58.9	98.0		0 24.0 -59.1	98.1		0 15.6 -59.3	98.1		0 07.2 -59.5	98.1		1
2	0 07.9 -58.0	98.2		0 00.7 +58.3	81.8		0 09.3 +58.5	81.8		0 17.9 +58.8	81.8		0 26.5 +59.0	81.8		0 35.1 +59.1	81.8		0 43.7 +59.3	81.8		0 52.3 +59.4	81.8		2
3	0 50.1 +58.0	81.5		0 59.0 +58.2	81.5		1 07.8 +58.5	81.5		1 16.7 +58.7	81.6		1 25.5 +58.9	81.6		1 34.2 +59.1	81.6		1 43.0 +59.3	81.6		1 51.7 +59.4	81.7		3
4	1 48.1 +58.0	81.2		1 57.2 +58.3	81.3		2 06.3 +58.5	81.3		2 15.4 +58.7	81.3		2 24.4 +58.9	81.4		2 33.3 +59.1	81.4		2 42.3 +59.2	81.5		2 51.1 +59.4	81.5		4
5	2 46.1 +58.0	81.0		2 55.5 +58.2	81.0		3 04.8 +58.5	81.1		3 14.1 +58.7	81.1		3 23.3 +58.9	81.2		3 32.4 +59.1	81.3		3 41.5 +59.3	81.3		3 50.5 +59.5	81.4		5
6	3 44.1 +58.0	80.7		3 53.7 +58.3	80.8		4 03.3 +58.5	80.9		4 12.8 +58.7	80.9		4 22.2 +58.9	81.0		4 31.5 +59.1	81.1		4 40.8 +59.3	81.2		4 50.0 +59.4	81.2		6
7	4 42.1 +58.0	80.5		4 52.0 +58.2	80.6		5 01.8 +58.5	80.6		5 11.5 +58.7	80.7		5 21.1 +58.9	80.8		5 30.6 +59.1	80.9		5 40.1 +59.2	81.0		5 49.4 +59.4	81.1		7
8	5 40.1 +57.9	80.2		5 50.2 +58.2	80.3		6 00.3 +58.4	80.4		6 10.2 +58.7	80.5		6 20.0 +58.9	80.6		6 29.7 +59.1	80.7		6 39.3 +59.3	80.9		6 48.8 +59.4	81.0		8
9	6 38.0 +58.0	80.0		6 48.4 +58.3	80.1		6 58.7 +58.5	80.2		7 08.9 +58.7	80.3		7 18.9 +58.9	80.4		7 28.8 +59.1	80.6		7 38.6 +59.3	80.7		7 48.2 +59.4	80.8		9
10	7 36.0 +58.0	79.7		7 46.7 +58.2	79.8		7 57.2 +58.5	80.0		8 07.6 +58.7	80.1		8 17.8 +58.9	80.2		8 27.9 +59.1	80.4		8 37.9 +59.2	80.5		8 47.6 +59.5	80.7		10
11	8 34.0 +57.9	79.4		8 44.9 +58.2	79.6		8 55.7 +58.4	79.7		9 06.3 +58.6	79.8		9 16.7 +58.9	80.1		9 27.0 +59.1	80.2		9 37.1 +59.3	80.4		9 47.1 +59.4	80.5		11
12	9 31.9 +57.9	79.2		9 43.1 +58.2	79.3		9 54.1 +58.4	79.5		10 04.9 +58.7	79.7		10 15.6 +58.9	79.9		10 26.1 +59.1	80.0		10 36.4 +59.2	80.2		10 46.5 +59.4	80.4		12
13	10 29.8 +58.0	78.9		10 41.3 +58.2	79.1		10 52.5 +58.5	79.3		11 03.6 +58.7	79.5		11 14.5 +58.9	79.7		11 25.2 +59.0	79.9		11 35.6 +59.3	80.1		11 45.9 +59.4	80.3		13
14	11 27.8 +57.9	78.6		11 39.5 +58.1	78.8		11 51.0 +58.4	79.0		12 02.3 +58.6	79.3		12 13.4 +58.8	79.5		12 24.2 +59.1	79.7		12 34.9 +59.2	79.9		12 45.3 +59.4	80.1		14
15	12 25.7 +57.8	78.4		12 37.6 +58.2	78.6		12 49.4 +58.4	78.8		13 00.9 +58.7	79.0		13 12.2 +58.9	79.3		13 23.3 +59.0	79.5		13 34.1 +59.2	79.7		13 44.7 +59.4	79.8		15
16	13 23.5 +57.9	78.1		13 35.8 +58.1	78.3		13 47.8 +58.4	78.6		13 59.6 +58.6	78.8		14 11.1 +58.8	79.1		14 22.3 +59.1	79.3		14 33.3 +59.2	79.6		14 44.1 +59.3	79.8		16
17	14 21.4 +57.9	77.8		14 33.9 +58.2	78.1		14 46.2 +58.4	78.3		14 58.2 +58.6	78.6		15 09.9 +58.9	78.9		15 21.4 +59.0	79.1		15 32.5 +59.3	79.4		15 43.4 +59.4	79.7		17
18	15 19.3 +57.8	77.6		15 32.1 +58.1	77.8		15 46.4 +58.3	78.1		15 56.8 +58.6	78.4		16 08.8 +58.8	78.7		16 20.4 +59.0	78.9		16 31.8 +59.2	79.2		16 42.8 +59.4	79.5		18
19	16 17.1 +57.8	77.3		16 30.2 +58.1	77.6		16 42.9 +58.4	77.9		16 55.4 +58.6	78.2		17 07.6 +58.8	78.5		17 19.4 +59.0	78.8		17 31.0 +59.2	79.1		17 42.2 +59.4	79.4		19
20	17 14.9 +57.8	77.0		17 28.3 +58.0	77.3		17 41.3 +58.3	77.6		17 54.0 +58.6	77.9		18 06.4 +58.8	78.2		18 18.4 +59.0	78.6		18 30.2 +59.2	78.9		18 41.6 +59.3	79.2		20
21	18 12.7 +57.8	76.7		18 26.3 +58.1	77.0		18 39.6 +58.3	77.4		18 52.6 +58.5	77.7		19 05.2 +58.8	78.0		19 17.4 +59.0	78.4		19 29.4 +59.1	78.7		19 40.9 +59.4	79.1		21
22	19 10.5 +57.7	76.4		19 24.4 +58.0	76.8		19 37.9 +58.3	77.1		19 51.1 +58.6	77.5		20 04.0 +58.7	77.8		20 16.4 +59.0	78.2		20 28.5 +59.2	78.5		20 40.3 +59.3	78.9		22
23	20 08.2 +57.7	76.1		20 22.4 +58.0	76.5		20 36.2 +58.3	76.9		20 49.7 +58.5	77.2		21 02.7 +58.8	77.6		21 15.4 +59.0	78.0		21 27.7 +59.2	78.4		21 39.6 +59.3	78.8		23
24	21 05.9 +57.7	75.8		21 20.4 +57.9	76.2		21 34.5 +58.2	76.6		21 48.2 +58.5	77.0		22 01.5 +58.7	77.4		22 14.4 +58.9	77.8		22 26.9 +59.1	78.2		22 38.9 +59.4	78.6		24
25	22 03.6 +57.6	75.6		22 18.3 +58.0	75.9		22 32.7 +58.2	76.3		22 46.7 +58.4	76.8		23 00.2 +58.7	77.2		23 13.3 +59.0	77.6		23 26.0 +59.1	78.0		23 38.3 +59.3	78.4		25
26	23 01.2 +57.6	75.3		23 16.3 +57.9	75.7		23 30.9 +58.2	76.1		23 45.1 +58.5	76.5		23 58.9 +58.7	76.9		24 12.3 +58.9	77.4		24 25.1 +59.2	77.8		24 37.6 +59.3	78.3		26
27	23 58.8 +57.6	74.9		24 14.2 +57.9	75.4		24 29.1 +58.2	75.8		24 43.6 +58.4	76.3		24 57.6 +58.7	76.7		25 11.2 +58.9	77.2		25 24.3 +59.1	77.6		25 36.9 +59.3	78.1		27
28	24 56.4 +57.5	74.6		25 12.1 +57.8	75.1		25 27.3 +58.1	75.5		25 42.0 +58.4	76.0		25 56.3 +58.6	76.5		26 10.1 +58.8	76.7		26 23.4 +59.0	77.4		26 36.2 +59.2	77.8		28
29	25 53.9 +57.5	74.3		26 09.9 +57.8	74.8		26 25.4 +58.1	75.3		26 40.4 +58.4	75.8		26 54.9 +58.7	76.2		27 08.9 +58.9	76.7		27 22.4 +59.1	77.2		27 35.4 +59.3	77.8		29
30	26 51.4 +57.5	74.0		27 07.7 +57.8	74.5		27 23.5 +58.1	75.0		27 38.8 +58.3	75.5		27 53.6 +58.6	76.0		28 07.8 +58.8	76.5		28 21.5 +59.1	77.0		28 34.7 +59.2	77.6		30
31	27 48.9 +57.4	73.7		28 05.5 +57.7	74.2		28 16.1 +58.0	74.7		28 37.1 +58.3	75.2		28 52.2 +58.5	75.8		29 06.6 +58.9	76.3		29 20.6 +59.0	76.8		29 33.9 +59.3	77.4		31
32	28 46.3 +57.3	73.3		29 03.2 +57.7	73.9		29 19.6 +58.0	74.4		29 35.4 +58.3	75.0		29 50.7 +58.6	75.5		30 05.5 +58.7	76.1		30 19.6 +59.0	76.6		30 33.2 +59.2	77.2		32
33	29 43.6 +57.3	73.0		30 00.9 +57.6	73.6		30 17.6 +57.9	74.1		30 33.7 +58.3	74.7		30 49.3 +58.5	75.3		31 04.2 +58.8	75.8		31 18.6 +59.0	76.4		31 32.4 +59.2	77.0		33
34	30 40.9 +57.3	72.7		30 58.5 +57.6	73.2		31 15.5 +57.9	73.8		31 32.0 +58.2	74.4		31 47.8 +58.5	75.0		32 03.0 +58.8	75.6		32 17.6 +59.0	76.2		32 31.6 +59.2	76.8		34
35	31 38.2 +57.2	72.3		31 56.1 +57.5	72.9		32 13.4 +57.9	73.5		32 30.2 +58.1	74.1		32 46.3 +58.4	74.7		33 01.8 +58.7	75.4		33 16.6 +58.9	76.0		33 30.8 +59.2	76.6		35
36	32 35.4 +57.1	72.0		32 53.6 +57.5	72.6		33 11.3 +57.8	73.2		33 28.3 +58.1	73.8		33 44.7 +58.4	74.5		34 00.5 +58.6	75.1		34 15.5 +59.0	75.8		34 30.0 +59.1	76.4		36
37	33 32.5 +57.1	71.6		33 51.1 +57.4	72.2		34 09.1 +57.8	72.9		34 26.4 +58.1	73.5		34 43.1 +58.4	74.2		34 59.1 +58.7	74.9		35 14.5 +58.9	75.5		35 29.1 +59.1	76.2		37
38	34 29.6 +56.9	71.2		34 48.3 +57																					

83°, 277° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.	
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
0	1 48.5 +57.9	96.8	1 41.4 +58.2	96.8	1 34.3 +58.4	96.8	1 27.1 +58.7	96.8	1 19.9 +59.0	96.9	1 12.8 +59.1	96.9	1 05.5 +59.3	96.9	0 58.3 +59.4	96.9	0	5 55.4 +59.4	96.2	5 55.4 +59.4	96.2	5 55.4 +59.4	96.2	5 55.4 +59.4	96.2	5
1	2 46.4 +58.0	96.5	2 39.6 +58.3	96.6	2 32.7 +58.5	96.6	2 25.8 +58.7	96.6	2 18.9 +58.9	96.7	2 11.9 +59.1	96.7	2 04.8 +59.3	96.8	1 57.7 +59.5	96.8	1	5 57.7 +59.5	96.8	5 57.7 +59.5	96.8	5 57.7 +59.5	96.8	5 57.7 +59.5	96.8	1
2	3 44.4 +58.0	96.2	3 37.9 +58.2	96.3	3 31.2 +58.5	96.4	3 24.5 +58.7	96.4	3 17.8 +58.9	96.5	3 11.0 +59.1	96.5	3 04.1 +59.3	96.6	2 57.2 +59.4	96.7	2	5 57.2 +59.4	96.7	5 57.2 +59.4	96.7	5 57.2 +59.4	96.7	5 57.2 +59.4	96.7	2
3	4 42.4 +58.0	96.0	4 36.1 +58.2	96.1	4 29.7 +58.5	96.2	4 23.2 +58.7	96.2	4 16.7 +58.9	96.3	4 10.1 +59.1	96.4	4 03.4 +59.2	96.4	3 56.6 +59.4	96.5	3	5 56.6 +59.4	96.5	5 56.6 +59.4	96.5	5 56.6 +59.4	96.5	5 56.6 +59.4	96.5	3
4	5 40.4 +57.9	95.7	5 34.3 +58.2	95.8	5 28.2 +58.4	95.9	5 21.9 +58.7	96.0	5 15.6 +58.9	96.1	5 09.2 +59.0	96.2	5 02.6 +59.3	96.3	4 56.0 +59.4	96.4	4	5 56.0 +59.4	96.4	5 56.0 +59.4	96.4	5 56.0 +59.4	96.4	5 56.0 +59.4	96.4	4
5	6 38.3 +58.0	95.5	6 32.5 +58.3	95.6	6 26.6 +58.5	95.7	6 20.6 +58.7	95.8	6 14.5 +58.9	95.9	6 08.2 +59.1	96.0	6 01.9 +59.3	96.1	5 55.4 +59.4	96.2	5	5 55.4 +59.4	96.2	5 55.4 +59.4	96.2	5 55.4 +59.4	96.2	5 55.4 +59.4	96.2	5
6	7 36.3 +57.9	95.2	7 30.8 +58.2	95.3	7 25.1 +58.5	95.5	7 19.3 +58.7	95.6	7 13.4 +58.9	95.7	7 07.3 +59.1	95.9	7 01.2 +59.2	96.0	6 54.8 +59.5	96.1	6	6 54.8 +59.5	96.1	6 54.8 +59.5	96.1	6 54.8 +59.5	96.1	6 54.8 +59.5	96.1	6
7	8 34.2 +58.0	94.9	8 29.0 +58.2	95.1	8 23.6 +58.4	95.2	8 18.0 +58.7	95.4	8 12.3 +58.9	95.5	8 06.4 +59.1	95.7	8 00.4 +59.3	95.8	7 54.3 +59.4	96.0	7	7 54.3 +59.4	96.0	7 54.3 +59.4	96.0	7 54.3 +59.4	96.0	7 54.3 +59.4	96.0	7
8	9 32.2 +57.9	94.7	9 27.2 +58.2	94.9	9 22.0 +58.4	95.0	9 16.7 +58.6	95.2	9 11.2 +58.9	95.3	9 05.5 +59.1	95.5	8 59.7 +59.2	95.7	8 53.7 +59.4	95.8	8	8 53.7 +59.4	95.8	8 53.7 +59.4	95.8	8 53.7 +59.4	95.8	8 53.7 +59.4	95.8	8
9	10 30.1 +57.9	94.4	10 25.4 +58.1	94.6	10 20.4 +58.5	94.8	10 15.3 +58.7	95.0	10 10.1 +58.8	95.1	10 04.6 +59.0	95.3	9 58.9 +59.3	95.5	9 53.1 +59.4	95.7	9	9 53.1 +59.4	95.7	9 53.1 +59.4	95.7	9 53.1 +59.4	95.7	9 53.1 +59.4	95.7	9
10	11 28.0 +57.9	94.2	11 23.5 +58.2	94.4	11 18.9 +58.4	94.6	11 14.0 +58.7	94.8	11 08.9 +58.9	95.0	11 03.6 +59.1	95.1	10 58.2 +59.2	95.3	10 52.5 +59.4	95.5	10	10 52.5 +59.4	95.5	10 52.5 +59.4	95.5	10 52.5 +59.4	95.5	10 52.5 +59.4	95.5	10
11	12 25.9 +57.9	93.9	12 21.7 +58.2	94.1	12 17.3 +58.4	94.3	12 12.7 +58.6	94.5	12 07.8 +58.9	94.8	12 02.7 +59.1	95.0	11 57.4 +59.2	95.2	11 51.9 +59.4	95.4	11	11 51.9 +59.4	95.4	11 51.9 +59.4	95.4	11 51.9 +59.4	95.4	11 51.9 +59.4	95.4	11
12	13 23.8 +57.8	93.6	13 19.9 +58.1	93.9	13 15.7 +58.4	94.1	13 11.3 +58.6	94.3	13 06.7 +58.8	94.6	13 01.8 +59.0	94.8	12 56.6 +59.3	95.0	12 51.3 +59.4	95.2	12	12 51.3 +59.4	95.2	12 51.3 +59.4	95.2	12 51.3 +59.4	95.2	12 51.3 +59.4	95.2	12
13	14 21.6 +57.9	93.3	14 18.0 +58.1	93.6	14 14.1 +58.4	93.9	14 09.9 +58.7	94.1	14 05.5 +58.8	94.4	14 00.8 +59.1	94.6	13 55.9 +59.2	94.9	13 50.7 +59.4	95.1	13	13 50.7 +59.4	95.1	13 50.7 +59.4	95.1	13 50.7 +59.4	95.1	13 50.7 +59.4	95.1	13
14	15 19.5 +57.8	93.1	15 16.1 +58.1	93.3	15 12.5 +58.3	93.6	15 08.6 +58.8	93.9	15 04.3 +58.9	94.2	14 59.9 +59.0	94.4	14 55.1 +59.2	94.7	14 50.1 +59.3	95.0	14	14 50.1 +59.3	95.0	14 50.1 +59.3	95.0	14 50.1 +59.3	95.0	14 50.1 +59.3	95.0	14
15	16 17.3 +57.8	92.8	16 14.2 +58.1	93.1	16 10.8 +58.4	93.4	16 07.2 +58.5	93.7	16 03.2 +58.8	93.9	15 58.9 +59.0	94.2	15 54.3 +59.2	94.5	15 49.4 +59.4	94.8	15	15 49.4 +59.4	94.8	15 49.4 +59.4	94.8	15 49.4 +59.4	94.8	15 49.4 +59.4	94.8	15
16	17 15.1 +57.8	92.5	17 12.3 +58.1	92.8	17 09.2 +58.3	93.1	17 05.7 +58.6	93.4	17 02.0 +58.8	93.7	16 57.9 +59.0	94.0	16 53.5 +59.2	94.4	16 48.8 +59.4	94.7	16	16 48.8 +59.4	94.7	16 48.8 +59.4	94.7	16 48.8 +59.4	94.7	16 48.8 +59.4	94.7	16
17	18 12.9 +57.7	92.2	18 10.4 +58.0	92.6	18 07.5 +58.3	92.9	18 04.3 +58.6	93.2	18 00.8 +58.8	93.5	17 56.9 +59.0	93.9	17 52.7 +59.2	94.2	17 48.2 +59.3	94.5	17	17 48.2 +59.3	94.5	17 48.2 +59.3	94.5	17 48.2 +59.3	94.5	17 48.2 +59.3	94.5	17
18	19 10.6 +57.7	91.9	19 08.4 +58.0	92.3	19 05.8 +58.3	92.6	19 02.9 +58.5	92.9	18 59.6 +58.8	93.3	18 55.9 +59.0	93.7	18 51.9 +59.2	94.0	18 47.5 +59.4	94.3	18	18 47.5 +59.4	94.3	18 47.5 +59.4	94.3	18 47.5 +59.4	94.3	18 47.5 +59.4	94.3	18
19	20 08.3 +57.7	91.7	20 06.4 +58.0	92.0	20 04.1 +58.3	92.4	20 01.4 +58.6	92.7	19 58.4 +58.7	93.1	19 54.9 +59.0	93.5	19 51.1 +59.2	93.8	19 46.9 +59.3	94.2	19	19 46.9 +59.3	94.2	19 46.9 +59.3	94.2	19 46.9 +59.3	94.2	19 46.9 +59.3	94.2	19
20	21 06.0 +57.7	91.4	21 04.4 +58.0	91.7	21 02.4 +58.2	92.1	21 00.0 +58.5	92.5	20 57.1 +58.8	92.9	20 53.9 +59.0	93.3	20 50.3 +59.1	93.7	20 46.2 +59.4	94.0	20	20 46.2 +59.4	94.0	20 46.2 +59.4	94.0	20 46.2 +59.4	94.0	20 46.2 +59.4	94.0	20
21	22 03.7 +57.6	91.1	22 02.4 +57.9	91.5	22 00.6 +58.3	91.9	21 58.5 +58.4	92.3	21 55.9 +58.7	92.7	21 52.9 +58.9	93.1	21 49.4 +59.2	93.5	21 45.6 +59.3	93.9	21	21 45.6 +59.3	93.9	21 45.6 +59.3	93.9	21 45.6 +59.3	93.9	21 45.6 +59.3	93.9	21
22	23 01.3 +57.6	90.8	23 00.3 +57.9	91.2	22 58.9 +58.1	91.6	22 56.9 +58.5	92.0	22 54.6 +58.7	92.5	22 51.8 +58.9	92.9	22 48.6 +59.1	93.3	22 44.9 +59.3	93.7	22	22 44.9 +59.3	93.7	22 44.9 +59.3	93.7	22 44.9 +59.3	93.7	22 44.9 +59.3	93.7	22
23	23 58.9 +57.6	90.5	23 58.2 +57.9	90.9	23 57.0 +58.2	91.3	23 55.4 +58.4	91.8	23 53.3 +58.7	92.2	23 50.7 +59.0	92.7	23 47.7 +59.1	93.1	23 44.2 +59.3	93.6	23	23 44.2 +59.3	93.6	23 44.2 +59.3	93.6	23 44.2 +59.3	93.6	23 44.2 +59.3	93.6	23
24	24 56.5 +57.5	90.1	24 56.1 +57.8	90.6	24 55.2 +58.2	91.1	24 53.8 +58.5	91.5	24 52.0 +58.7	92.0	24 49.7 +58.9	92.5	24 46.8 +59.1	93.4	24 43.5 +59.3	94.2	24	24 43.5 +59.3	94.2	24 43.5 +59.3	94.2	24 43.5 +59.3	94.2	24 43.5 +59.3	94.2	24
25	25 54.0 +57.8	89.8	25 53.8 +57.9	89.5	25 53.4 +58.1	89.8	25 52.3 +58.3	90.1	25 50.7 +58.6	91.8	25 48.6 +58.8	92.3	25 45.9 +59.1	92.7	25 42.8 +59.3	93.2	25	25 42.8 +59.3	93.2	25 42.8 +59.3	93.2	25 42.8 +59.3	93.2	25 42.8 +59.3	93.2	25
26	26 51.5 +57.4	89.5	26 51.7 +57.8	89.0	26 51.0 +58.0	89.5	26 50.6 +58.4	89.0	26 49.3 +58.6	89.5	26 45.4 +58.8	90.1	26 42.4 +59.0	90.5	26 39.4 +59.3	91.0	26	26 39.4 +59.3	91.0	26 39.4 +59.3	91.0	26 39.4 +59.3	91.0	26 39.4 +59.3	91.0	26
27	27 48.9 +57.4	89.2	27 49.5 +57.7	89.7	27 49.0 +58.3	90.2	27 47.9 +58.6	90.8	27 44.7 +58.8	91.3	27 41.6 +59.0	91.8	27 38.4 +59.2	92.3	27 33.2 +59.4	92.9	27	27 33.2 +59.4	92.9	27 33.2 +59.4	92.9	27 33.2 +59.4	92.9	27 33.2 +59.4	92.9	27
28	28 46.3 +57.4	88.9	28 47.2 +57.7	89.4	28 47.6 +57.9	89.0	28 45.8 +58.3	89.5	28 43.6 +58.6	90.0	28 41.5 +58.9	90.5	28 39.1 +59.3	91.0	28 36.2 +59.6	91.5	28	28 36.2 +59.6	91.5	28 36.2 +59.6	91.5	28 36.2 +59.6	91.5	28 36.2 +59.6	91.5	28
29	29 43.7 +57.2	88.5	29 44.9 +57.5	87.4	29 43.6 +57.8																					

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 83°, 277°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z			
0	1 48.5 -58.0	96.8	1 41.4 -58.3	96.8	1 34.3 -58.5	96.8	1 27.1 -58.7	96.8	1 19.9 -58.9	96.9	1 12.8 -59.1	96.9	1 05.5 -59.2	96.9	0 06.3 -59.3	97.1	0 58.3 -59.4	96.9	0 01.1 +59.4	82.9	1 00.5 +59.5	82.8	2 00.0 +59.4	82.7	2 59.4 +59.4	82.5	0
1	0 50.5 -58.0	97.0	0 43.1 -58.2	97.0	0 35.8 -58.5	97.0	0 28.4 -58.7	97.1	0 21.0 -58.9	97.1	0 13.7 -59.1	97.1	0 06.3 -59.3	97.1	0 58.3 -59.4	96.9	0 01.1 +59.4	82.9	1 00.5 +59.5	82.8	2 00.0 +59.4	82.7	2 59.4 +59.4	82.5	4		
2	0 07.5 +58.0	82.7	0 15.1 +58.3	82.7	0 22.7 +58.5	82.7	0 30.3 +58.7	82.7	0 37.9 +58.9	82.7	0 45.4 +59.1	82.8	0 53.0 +59.3	82.8	1 00.5 +59.5	82.8	1 00.5 +59.5	82.8	2 00.0 +59.4	82.7	2 59.4 +59.4	82.5	3				
3	1 05.5 +58.0	82.5	1 13.4 +58.2	82.5	1 21.2 +58.5	82.5	1 29.0 +58.7	82.5	1 36.8 +58.9	82.6	1 44.5 +59.1	82.6	1 52.3 +59.2	82.6	2 00.0 +59.4	82.7	2 00.0 +59.4	82.7	2 59.4 +59.4	82.5	3						
4	2 03.5 +58.0	82.2	2 11.6 +58.2	82.2	2 19.7 +58.5	82.3	2 27.7 +58.7	82.3	2 35.7 +58.9	82.4	2 43.6 +59.1	82.4	2 51.5 +59.3	82.5	3 01.5 +58.0	82.3	3 58.8 +59.4	82.4	4 58.2 +59.5	82.2	4 58.2 +59.5	82.2	5				
5	3 01.5 +58.0	82.0	3 09.8 +58.3	82.0	3 18.2 +58.4	82.1	3 26.4 +58.7	82.1	3 34.6 +58.9	82.2	3 42.7 +59.1	82.2	3 50.8 +59.3	82.3	4 58.8 +59.4	82.4	5 57.4 +59.4	82.1	6 57.4 +59.4	82.1	6 57.4 +59.4	82.0	7				
6	3 59.5 +57.9	81.7	4 08.1 +58.2	81.8	4 16.6 +58.5	81.8	4 25.1 +58.7	81.9	4 33.5 +58.9	82.0	4 41.8 +59.1	82.1	4 50.1 +59.2	82.2	5 49.3 +59.3	82.0	6 48.6 +59.3	81.8	7 48.6 +59.3	81.8	8 48.6 +59.3	82.0	9				
7	4 57.4 +58.0	81.4	5 06.3 +58.2	81.5	5 15.1 +58.5	81.6	5 23.8 +58.7	81.7	5 32.4 +58.9	81.8	5 40.9 +59.1	81.9	5 49.3 +59.3	82.0	6 48.6 +59.3	81.8	7 48.6 +59.3	81.8	8 48.6 +59.3	82.0	9 57.7 +59.4	82.1	10				
8	5 55.4 +58.0	81.2	6 04.5 +58.3	81.3	6 13.6 +58.5	81.4	6 22.5 +58.7	81.5	6 31.3 +58.9	81.6	6 40.0 +59.1	81.7	6 49.0 +59.3	81.8	7 47.9 +59.2	81.7	7 56.5 +59.4	81.8	8 56.5 +59.4	81.9	9 57.1 +59.4	82.0	11				
9	6 53.4 +57.9	80.9	7 02.8 +58.2	81.0	7 12.1 +58.4	81.2	7 21.2 +58.7	81.3	7 30.2 +58.9	81.4	7 39.1 +59.1	81.5	7 47.9 +59.2	81.7	7 56.5 +59.4	81.8	8 56.5 +59.4	81.9	9 56.5 +59.4	82.0	10 56.5 +59.4	82.1	14				
10	7 51.3 +57.9	80.7	8 01.0 +58.2	80.8	8 10.5 +58.5	80.9	8 19.9 +58.7	81.1	8 29.1 +58.9	81.2	8 38.2 +59.1	81.4	8 47.1 +59.3	81.5	8 55.9 +59.4	81.7	8 55.9 +59.4	81.7	9 55.3 +59.4	81.5	10 55.3 +59.4	81.5	10				
11	8 49.2 +58.0	80.4	8 59.2 +58.2	80.5	9 09.0 +58.4	80.7	9 18.6 +58.6	80.9	9 28.0 +58.9	81.0	9 37.3 +59.1	81.2	9 46.4 +59.2	81.4	9 55.3 +59.4	81.5	9 55.3 +59.4	81.5	10 54.7 +59.4	81.4	11 54.7 +59.4	81.4	12				
12	9 47.2 +57.9	80.1	9 57.4 +58.2	80.3	10 07.4 +58.4	80.5	10 17.2 +58.7	80.7	10 26.9 +58.9	80.8	10 36.4 +59.0	81.0	10 45.6 +59.3	81.2	10 54.7 +59.4	81.2	10 54.7 +59.4	81.2	11 54.1 +59.4	81.2	11 54.1 +59.4	81.2	13				
13	10 45.1 +57.9	79.9	10 55.6 +58.1	80.1	11 05.8 +58.5	80.2	11 15.9 +58.7	80.4	11 25.8 +58.8	80.6	11 35.4 +59.1	80.8	11 44.9 +59.2	81.0	11 54.1 +59.4	81.2	11 54.1 +59.4	81.2	12 53.5 +59.4	81.4	12 53.5 +59.4	81.4	14				
14	11 43.0 +57.9	79.6	11 53.7 +58.2	79.8	12 04.3 +58.4	80.0	12 14.6 +58.6	80.2	12 24.6 +58.9	80.4	12 34.5 +59.0	80.7	12 44.1 +59.2	80.9	12 53.5 +59.4	81.1	12 53.5 +59.4	81.1	13 52.9 +59.4	81.0	13 52.9 +59.4	81.0	15				
15	12 40.9 +57.9	79.3	12 51.9 +58.1	79.5	13 02.7 +58.4	79.8	13 13.2 +58.6	80.0	13 23.5 +58.8	80.2	13 33.5 +59.1	80.5	13 43.3 +59.3	80.7	13 52.9 +59.4	81.0	13 52.9 +59.4	81.0	14 52.3 +59.4	80.8	14 52.3 +59.4	80.8	16				
16	13 38.8 +57.8	79.1	13 50.0 +58.2	79.3	14 01.1 +58.3	79.5	14 11.8 +58.6	79.8	14 22.3 +58.9	80.0	14 32.6 +59.0	80.3	14 42.6 +59.2	80.5	14 52.3 +59.4	80.8	14 52.3 +59.4	80.8	15 51.7 +59.3	80.7	15 51.7 +59.3	80.7	17				
17	14 36.6 +57.9	78.8	14 48.2 +58.1	79.0	14 59.4 +58.4	79.3	15 10.4 +58.6	79.6	15 21.2 +58.8	79.8	15 31.6 +59.0	80.1	15 41.8 +59.2	80.4	15 51.7 +59.3	80.7	15 51.7 +59.3	80.7	16 50.0 +59.4	80.5	16 50.0 +59.4	80.5	18				
18	15 34.5 +57.8	78.5	15 46.3 +58.1	78.8	15 57.8 +58.4	79.1	16 09.0 +58.6	79.3	16 20.0 +58.8	79.6	16 30.6 +59.1	79.9	16 41.0 +59.2	80.2	16 51.0 +59.4	80.5	16 51.0 +59.4	80.5	17 50.4 +59.4	80.4	17 50.4 +59.4	80.4	19				
19	16 32.3 +57.8	78.2	16 44.4 +58.0	78.5	16 56.2 +58.3	78.8	17 07.6 +58.6	79.1	17 18.8 +58.8	79.4	17 29.7 +59.0	79.7	17 40.2 +59.2	80.0	17 50.4 +59.4	80.4	17 50.4 +59.4	80.4	18 49.8 +59.3	80.2	18 49.8 +59.3	80.2	20				
20	17 30.1 +57.7	77.9	17 42.4 +58.1	78.3	17 54.5 +58.3	78.6	18 06.2 +58.6	78.9	18 17.6 +58.8	79.2	18 28.7 +59.0	79.5	18 39.4 +59.2	79.9	18 49.8 +59.3	80.2	18 49.8 +59.3	80.2	19 49.1 +59.4	80.1	19 49.1 +59.4	80.1	21				
21	18 27.8 +57.8	77.7	18 40.5 +58.0	78.0	18 52.8 +58.3	78.3	19 04.8 +58.5	78.7	19 16.4 +58.8	79.0	19 27.7 +58.9	79.3	19 38.6 +59.2	79.7	19 48.1 +59.4	80.1	19 48.1 +59.4	80.1	20 48.5 +59.3	79.9	20 48.5 +59.3	79.9	22				
22	19 25.6 +57.7	77.4	19 38.5 +58.0	77.7	19 51.1 +58.3	78.1	20 03.3 +58.5	78.4	20 15.2 +58.7	78.8	20 26.6 +59.0	79.2	20 37.8 +59.1	79.5	20 48.5 +59.3	79.9	20 48.5 +59.3	79.9	21 47.8 +59.3	79.7	21 47.8 +59.3	79.7	23				
23	20 23.3 +57.7	77.1	20 36.5 +58.0	77.5	20 49.4 +58.2	77.8	21 01.8 +58.6	78.2	21 13.9 +58.8	78.6	21 25.6 +59.0	79.0	21 36.9 +59.2	79.3	21 47.8 +59.3	79.7	21 47.8 +59.3	79.7	22 47.1 +59.4	79.6	22 47.1 +59.4	79.6	24				
24	21 21.0 +57.6	76.8	21 34.5 +58.0	77.2	21 47.6 +58.3	77.6	22 00.4 +58.4	78.0	22 12.7 +58.7	78.4	22 24.6 +58.9	78.8	22 36.1 +59.1	79.2	22 47.1 +59.4	79.6	22 47.1 +59.4	79.6	23 46.5 +59.3	79.4	23 46.5 +59.3	79.4	25				
25	22 18.6 +57.7	76.5	22 32.5 +57.9	76.9	22 45.9 +58.2	77.3	22 58.8 +58.5	77.7	23 11.4 +58.7	78.1	23 23.5 +58.9	78.6	23 35.2 +59.1	79.0	23 46.5 +59.3	79.4	23 46.5 +59.3	79.4	24 44.3 +59.4	79.2	24 44.3 +59.4	79.2	25				
26	23 16.3 +57.6	76.2	23 30.4 +57.9	76.6	23 44.1 +58.1	77.0	23 57.3 +58.4	77.5	24 10.1 +58.7	77.9	24 22.4 +58.9	78.3	24 34.3 +59.1	78.8	24 45.8 +59.3	79.2	24 45.8 +59.3	79.2	25 37.2 +59.1	79.0	25 37.2 +59.1	79.0	26				
27	24 13.9 +57.5	75.9	24 28.3 +57.8	76.3	24 42.2 +58.2	76.8	24 55.7 +58.4	77.2	25 08.8 +58.6	77.7	25 21.3 +58.9	78.1	25 33.4 +59.1	78.6	25 45.1 +59.3	79.0	25 45.1 +59.3	79.0	26 44.3 +59.4	78.8	26 44.3 +59.4	78.8	28				
28	25 11.4 +57.5	75.6	25 26.1 +57.9	76.0	25 40.4 +58.1	76.5	25 54.1 +58.4	77.0	26 07.4 +58.7	77.4	26 20.2 +58.9	77.9	26 32.5 +59.1	78.4	26 44.3 +59.3	78.8	26 44.3 +59.3	78.8	27 36.3 +59.1	78.7	27 36.3 +59.1	78.7	29				
29	26 08.9 +57.5	75.3	26 24.0 +57.8	75.7	26 38.5 +58.1	76.2	26 52.5 +58.4	76.7	27 06.1 +58.6	77.0	27 13.1 +58.8	77.6	27 26.8 +58.9	78.2	27 39.8 +59.1	78.6	27 39.8 +59.1	78.6	28 38.9 +59.2	78.5	28 38.9 +59.2	78.5	34				
30	27 06.4 +57.4	74.9	27 21.7 +57.8	75.4	27 36.6 +58.0	75.9	27 50.9 +58.3	76.4	28 04.7 +58.6	77.0	28 18.0 +58.8	77.5	28 30.7 +59.0	78.0	28 42.9 +59.2	78.5	28 42.9 +59.2	78.5	29 29.7 +59.1	77.8	29 29.7 +59.1	77.8	30				
31	28 03.8 +57.4	74.6	28 19.5 +57.7	75.1	28 34.6 +58.0	75.5	28 49.2 +58.3	76.2	29 03.3 +58.5	76.7	29 16.8 +58.8	77.3	29 29.7 +59.1	77.8	29 42.1 +59.2	78.4	29 42.1 +59.2	78.4	30 35.3 +59.3	78.2	30 35.3 +59.3	78.2	31				
32	29 01.2 +57.3	74.3	29 17.2 +57.6	74.8	29 32.6 +58.0	75.4	29 47.5 +58.3	75.9	30 01																		

84°, 276° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180° Zn=7
L.H.A. less than 180° Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.			
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z				
0	1 33.0 +58.0	95.8	1 26.9 +58.3	95.8	1 20.8 +58.5	95.8	1 14.7 +58.7	95.9	1 08.6 +58.9	95.9	1 02.4 +59.1	95.9	0 56.2 +59.3	95.9	0 50.0 +59.4	95.9	0	5 22.9 +59.4	95.2	5 47.1 +59.4	95.2	5 52.5 +59.3	95.1	5 47.1 +59.4	95.2	5		
1	2 31.0 +58.0	95.5	2 25.2 +58.2	95.6	2 19.3 +58.5	95.6	2 13.4 +58.7	95.7	2 07.5 +58.9	95.7	2 01.5 +59.1	95.7	1 55.5 +59.3	95.8	1 49.4 +59.5	95.8	1	7 20.8 +57.9	94.2	7 60.9 +58.7	94.6	6 57.0 +59.0	94.9	6 51.8 +59.3	95.0	6 46.5 +59.4	95.1	6
2	3 29.0 +57.9	95.3	3 23.4 +58.2	95.3	3 17.8 +58.5	95.4	3 12.1 +58.7	95.5	3 06.4 +58.9	95.5	3 00.6 +59.1	95.6	2 54.8 +59.2	95.6	2 48.9 +59.4	95.7	2	8 18.7 +58.0	94.0	8 10.1 +58.5	94.3	8 05.6 +58.6	94.4	8 53.5 +59.1	95.4	8 48.3 +59.4	95.5	3
3	4 26.9 +58.0	95.0	4 21.6 +58.3	95.1	4 16.3 +58.4	95.2	4 10.8 +58.7	95.2	4 05.3 +58.9	95.3	3 59.7 +59.1	95.4	3 54.0 +59.3	95.5	3 48.3 +59.4	95.5	3	9 16.7 +57.9	93.7	9 12.7 +58.2	93.9	9 04.2 +58.4	94.0	9 58.8 +59.1	95.2	4 47.7 +59.4	95.4	4
4	5 24.9 +58.0	94.8	5 19.9 +58.2	94.9	5 14.7 +58.5	94.9	5 09.5 +58.7	95.0	5 04.2 +58.9	95.1	4 58.8 +59.1	95.2	4 53.3 +59.2	95.3	4 47.7 +59.4	95.4	4	6 22.9 +57.9	94.5	6 18.1 +58.2	94.6	6 13.2 +58.5	94.7	6 08.2 +58.7	94.8	6 03.1 +58.9	94.9	5
5	7 20.8 +57.9	94.2	7 16.3 +58.2	94.4	7 11.7 +58.4	94.5	7 06.9 +58.7	94.6	7 02.0 +58.9	94.7	6 57.0 +59.0	94.9	6 51.8 +59.3	95.0	6 46.5 +59.4	95.1	6	8 16.7 +57.9	93.7	8 12.7 +58.2	93.9	8 04.2 +58.4	94.0	8 55.1 +59.1	94.5	8 45.4 +59.4	94.8	8
6	9 10.4 +57.9	93.9	9 12.7 +58.2	93.7	9 08.6 +58.4	94.0	9 04.2 +58.7	94.2	8 59.8 +58.8	94.4	8 55.1 +59.1	94.5	8 50.3 +59.3	94.7	8 45.4 +59.4	94.8	8	10 14.6 +57.9	93.5	10 10.9 +58.2	93.6	10 07.0 +58.4	93.8	10 02.9 +58.7	94.0	9 54.2 +59.1	94.3	9
10	11 12.5 +57.9	93.2	11 09.1 +58.1	93.4	11 05.4 +58.4	93.6	11 01.6 +58.6	93.8	10 57.5 +58.9	94.0	10 53.3 +59.0	94.2	10 48.8 +59.3	94.4	10 44.2 +59.4	94.5	10	12 10.4 +57.9	92.9	12 07.2 +58.2	93.1	12 03.8 +58.4	93.3	12 00.2 +58.7	93.6	11 56.4 +58.8	93.8	11
11	13 08.3 +57.8	92.6	13 05.4 +58.1	92.9	13 02.2 +58.4	93.1	12 58.9 +58.6	93.3	12 55.2 +58.9	93.6	12 51.4 +59.0	93.8	12 47.3 +59.2	94.0	12 43.0 +59.3	94.3	12	14 06.1 +57.9	92.4	14 03.5 +58.1	92.6	14 00.6 +58.4	92.9	13 57.5 +58.6	93.1	13 54.1 +58.8	93.4	13
12	15 04.0 +57.8	92.1	15 01.6 +58.1	92.4	14 59.0 +58.4	92.6	14 56.1 +58.6	92.9	14 52.9 +58.8	93.2	14 49.5 +59.0	93.4	14 45.7 +59.3	93.7	14 41.7 +59.4	94.0	14	16 01.8 +57.8	91.8	15 59.7 +58.1	92.1	15 57.4 +58.3	92.4	15 54.7 +58.6	92.7	15 48.5 +59.0	93.0	15
13	16 59.6 +57.7	91.5	16 57.8 +58.1	91.8	16 55.7 +58.3	92.2	16 53.3 +58.6	92.5	16 50.6 +58.8	92.8	16 47.5 +59.0	93.1	16 44.2 +59.2	93.4	16 40.5 +59.4	93.7	16	17 57.3 +57.8	91.3	17 55.9 +58.0	91.6	17 54.0 +58.3	91.9	17 51.9 +58.5	92.2	17 46.5 +59.0	92.9	17
14	18 55.1 +57.7	91.0	18 53.3 +58.0	91.3	18 52.3 +58.3	91.7	18 50.4 +58.6	92.0	18 48.2 +58.7	92.3	18 45.5 +59.0	92.7	18 42.5 +59.2	93.0	18 39.2 +59.4	93.4	18	19 52.8 +57.7	90.7	19 51.9 +58.0	91.0	19 49.0 +58.5	91.8	19 46.9 +58.8	92.1	19 44.5 +59.0	92.5	19
15	20 50.5 +57.7	90.4	20 49.9 +58.0	90.8	20 48.9 +58.2	91.2	20 47.5 +58.5	91.5	20 45.7 +58.7	91.9	20 43.5 +59.0	92.3	20 40.9 +59.2	92.7	20 37.9 +59.3	93.0	20	21 48.2 +57.6	90.1	21 47.9 +57.9	90.5	21 44.0 +58.3	91.3	21 41.4 +58.8	92.1	21 37.2 +59.4	92.9	21
16	22 45.8 +57.6	89.8	22 45.8 +57.9	90.2	22 45.4 +58.2	90.6	22 44.5 +58.4	91.1	22 43.2 +58.7	91.5	22 41.4 +58.9	91.9	22 39.2 +59.1	92.3	22 36.6 +59.3	92.7	22	23 43.4 +57.6	89.5	23 43.7 +57.9	89.9	23 43.6 +58.1	90.4	23 41.9 +58.7	91.2	23 38.3 +59.2	92.6	23
17	24 41.0 +57.5	89.2	24 41.6 +57.8	89.6	24 41.7 +58.2	90.1	24 41.4 +58.4	90.6	24 40.6 +58.6	91.0	24 39.2 +58.9	91.5	24 37.5 +59.1	91.9	24 35.2 +59.3	92.4	24	25 38.5 +57.5	88.9	25 39.4 +57.8	89.3	25 39.9 +58.1	89.8	25 39.2 +58.7	90.3	25 38.1 +58.9	91.3	25
18	26 36.0 +57.4	88.5	26 37.2 +57.8	89.0	26 38.0 +58.0	89.5	26 38.2 +58.3	90.0	26 37.9 +58.6	90.5	26 37.0 +58.9	91.1	26 35.7 +59.0	91.6	26 33.8 +59.2	92.1	26	27 33.4 +57.4	88.2	27 35.0 +57.7	88.7	27 35.9 +58.0	89.3	27 34.9 +58.3	90.0	27 33.0 +59.3	91.9	27
19	28 30.8 +57.3	87.9	28 32.7 +57.7	88.4	28 34.1 +58.0	89.0	28 34.9 +58.3	89.5	28 35.1 +58.5	90.1	28 34.7 +58.8	90.6	28 33.8 +59.0	91.2	28 32.3 +59.2	91.7	28	29 28.1 +57.3	87.6	29 30.4 +57.6	88.1	29 32.1 +57.9	88.7	29 33.6 +58.2	89.3	29 33.5 +58.6	89.4	29
20	30 25.4 +57.3	87.2	30 28.0 +57.6	87.8	30 30.0 +58.0	88.4	30 31.4 +58.3	89.0	30 32.2 +58.5	89.6	30 32.3 +58.8	90.2	30 31.9 +59.0	90.7	30 30.8 +59.2	91.3	30	31 22.7 +57.1	86.9	31 25.6 +57.6	87.5	31 28.0 +57.8	88.1	31 29.7 +58.1	88.7	31 30.7 +58.5	89.3	31
31	32 19.8 +57.2	86.5	32 23.2 +57.5	87.1	32 25.8 +57.9	87.8	32 27.8 +58.2	88.4	32 29.2 +58.4	89.0	32 29.8 +58.8	89.7	32 29.8 +59.0	90.3	32 29.2 +59.2	91.0	32	33 17.0 +57.0	86.1	33 20.7 +57.4	86.8	33 23.7 +57.7	87.5	33 26.0 +58.1	88.1	33 28.8 +58.9	90.1	33
34	34 14.0 +57.0	85.8	34 18.1 +57.4	86.4	34 21.4 +57.8	87.1	34 24.1 +58.1	87.8	34 26.0 +58.4	88.5	34 27.2 +58.7	89.2	34 27.7 +59.0	89.9	34 27.5 +59.2	90.6	34	35 11.0 +56.9	85.4	35 15.5 +57.3	86.1	35 19.2 +57.6	86.8	35 22.2 +58.0	87.5	35 24.4 +58.3	88.2	35
35	36 07.9 +56.8	85.0	36 12.8 +57.2	85.7	36 16.8 +57.7	86.5	36 20.2 +57.9	87.2	36 22.7 +58.3	87.9	36 24.5 +58.6	88.7	36 25.5 +58.9	89.4	36 25.8 +59.1	90.1	36	37 04.7 +56.8	84.6	37 10.0 +57.2	85.4	37 14.5 +57.5	86.1	37 18.1 +57.9	86.9	37 21.0 +58.3	87.6	37
38	38 01.5 +56.6	84.2	38 07.2 +57.0	85.0	38 12.0 +57.5	85.8	38 16.0 +57.9	86.5	38 19.3 +58.2	87.3	38 21.6 +58.6	87.3	38 23.2 +58.8	87.1	38 23.9 +59.1	89.7	38	39 58.1 +56.6	83.8	39 04.2 +57.0	84.6	39 13.9 +57.8	86.2	39 17.5 +58.1	87.0	39 20.2 +58.4	87.8	39
40	40 54.7 +56.5	83.3	40 01.2 +57.0	84.2	40 06.9 +57.3	85.0	40 11.7 +57.7	85.8	40 15.6 +58.1	86.7	40 18.6 +58.4	87.5	40 20.8 +58.7	88.4	40 22.0 +59.0	89.2	40	41 50.2 +56.4	82.9	41 04.2 +57.3	83.6	41 13.7 +57.6	84.6	41 20.5 +58.0	85.0	41 24.5 +58.3	86.0	41
41	42 51.2 +56.4	82.9	42 45.2 +56.8	83.8	42 40.4 +57.3	84.6	42 47.1 +57.9	85.3	42 51.3 +58.0	86.0	42 54.5 +58.3	86.9	42 58.4 +59.0	87.6	42 61.5 +59.3	88.7	42	43 47.6 +56.2	82.4	43 01.5 +56.7	83.3	43 15.1 +57.2	84.2	43 21.0 +57.8	85.0	43 24.9 +58.0	86.9	43
42	44 41.6 +56.2	82.4	44 45.0 +56.7	83.3	44 41.5 +57.2	84.2	44 27.1 +57.6	85.1	44 17.7 +58.0	86.0	44 12.7 +58.3	86.0	44 15.4 +58.6	86.9	44 18.1 +59.7	87.8	44	45 34.0 +56.1	81.9	45 21.5 +56.6	82.7	45 28.4 +57.3	83.6	45 31.5 +58.0	84.4	45 35.0 +58.3	85.3	45
43	46 36.0 +55.8	81.0	46 44.9 +55.3	81.5	46 46.4 +56.6	82.0	46 54.2 +57.1	83.1	47 00.8 +57.6	84.1	47 03.7 +57.9	85.7	47 07.6 +58.4	86.6	47 10.6 +58.4	87.4	47	48 26.7 +55.3	80.5	48 22.3 +55.7	81.2	48 20.0 +56.2	82.4	48 17.0 +57.2	83.4	48 12.0 +58.2	84.2	48
44	49 23.6 +55.3	80.2	49 27.6 +55.8	80.5	49 30.6 +56.4	81.5	49 35.1 +56.7	82.3	49 44.5 +57.3	83.0	49 53.5 +58.0	83.7	49 57.2 +58.7	84.5	49 61.0 +59.4	85.2	49	50 19.8 +54.9	81.0	50 15.4 +55.3	81.7	50 10.2 +56.5	82.4	50 05.8 +58.2	83.6	50		
45	51 16.6 +54.5	80.8	51 21.1 +55.5	78.8	50 3																							

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 84°, 276°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	1 33.0 -58.0	95.8	1 26.9 -58.2	95.8	1 20.8 -58.4	95.8	1 14.7 -58.7	95.9	1 08.6 -58.9	95.9	1 02.4 -59.1	95.9	0 56.2 -59.3	95.9	0 50.0 -59.4	95.9	0 09.4 +59.4	83.9	0 09.4 +59.4	83.9	0 09.4 +59.4	83.9	0		
1	0 35.0 -57.9	96.1	0 28.7 -58.2	96.1	0 22.4 -58.5	96.1	0 16.0 -58.7	96.1	0 09.7 -58.9	96.1	0 03.3 -59.1	96.1	0 03.1 +59.2	83.9	0 09.4 +59.4	83.9	0 09.4 +59.4	83.9	0 09.4 +59.4	83.9	0 09.4 +59.4	83.9	1		
2	0 22.9 +58.0	83.7	0 29.5 +58.3	83.7	0 36.1 +58.5	83.7	0 42.7 +58.7	83.7	0 49.2 +59.0	83.7	0 55.8 +59.1	83.7	1 02.3 +59.3	83.8	1 08.8 +59.5	83.8	1 08.8 +59.5	83.8	1 08.8 +59.5	83.8	1 08.8 +59.5	83.8	2		
3	1 20.9 +58.0	83.4	1 27.8 +58.2	83.5	1 34.6 +58.5	83.5	1 41.4 +58.7	83.5	1 48.2 +58.9	83.5	1 54.9 +59.1	83.6	2 01.6 +59.3	83.6	2 08.3 +59.4	83.6	2 08.3 +59.4	83.6	2 08.3 +59.4	83.6	2 08.3 +59.4	83.6	3		
4	2 18.9 +58.0	83.2	2 26.0 +58.2	83.2	2 33.1 +58.4	83.3	2 40.1 +58.7	83.3	2 47.1 +58.9	83.3	2 54.0 +59.1	83.4	3 00.9 +59.2	83.5	3 07.7 +59.4	83.5	3 07.7 +59.4	83.5	3 07.7 +59.4	83.5	3 07.7 +59.4	83.5	4		
5	3 16.9 +57.9	82.9	3 24.2 +58.3	83.0	3 31.5 +58.5	83.0	3 38.8 +58.7	83.1	3 46.0 +58.9	83.2	3 53.1 +59.1	83.3	4 00.1 +59.3	83.3	4 07.1 +59.4	83.4	4 07.1 +59.4	83.4	4 07.1 +59.4	83.4	4 07.1 +59.4	83.4	5		
6	4 14.8 +58.0	82.7	4 22.5 +58.2	82.7	4 30.0 +58.5	82.8	4 37.5 +58.7	82.9	4 44.9 +58.9	83.0	4 52.2 +59.1	83.1	4 59.4 +59.3	83.1	5 06.5 +59.4	83.2	5 06.5 +59.4	83.2	5 06.5 +59.4	83.2	5 06.5 +59.4	83.2	6		
7	5 12.8 +58.0	82.4	5 20.7 +58.2	82.5	5 28.5 +58.4	82.6	5 36.2 +58.7	82.7	5 43.8 +58.9	82.8	5 51.3 +59.1	82.9	5 58.7 +59.2	83.0	6 05.9 +59.4	83.1	6 05.9 +59.4	83.1	6 05.9 +59.4	83.1	6 05.9 +59.4	83.1	7		
8	6 10.8 +57.9	82.1	6 18.9 +58.2	82.2	6 26.9 +58.5	82.4	6 34.9 +58.7	82.5	6 42.7 +58.9	82.6	6 50.4 +59.0	82.7	6 57.9 +59.3	82.8	7 05.3 +59.5	82.9	7 05.3 +59.5	82.9	7 05.3 +59.5	82.9	7 05.3 +59.5	82.9	8		
9	7 08.7 +57.9	81.9	7 17.1 +58.2	82.0	7 25.4 +58.5	82.1	7 33.6 +58.6	82.3	7 41.6 +58.9	82.4	7 49.4 +59.1	82.5	7 57.2 +59.2	82.7	8 04.8 +59.4	82.8	8 04.8 +59.4	82.8	8 04.8 +59.4	82.8	8 04.8 +59.4	82.8	9		
10	8 06.6 +58.0	81.6	8 15.3 +58.2	81.8	8 23.9 +58.4	81.9	8 32.2 +58.7	82.0	8 40.5 +58.8	82.2	8 48.5 +59.1	82.4	8 56.4 +59.3	82.5	9 04.2 +59.4	82.7	9 04.2 +59.4	82.7	9 04.2 +59.4	82.7	9 04.2 +59.4	82.7	10		
11	9 04.6 +57.9	81.4	9 13.5 +58.2	81.5	9 22.3 +58.4	81.7	9 30.9 +58.7	81.8	9 39.3 +58.9	82.0	9 47.6 +59.1	82.2	9 55.7 +59.2	82.3	10 03.6 +59.4	82.5	10 03.6 +59.4	82.5	10 03.6 +59.4	82.5	10 03.6 +59.4	82.5	11		
12	10 02.5 +57.9	81.1	10 11.7 +58.2	81.3	10 20.7 +58.5	81.4	10 29.6 +58.6	81.6	10 38.2 +58.9	81.8	10 46.7 +59.0	82.0	10 54.9 +59.3	82.2	11 03.0 +59.4	82.4	11 03.0 +59.4	82.4	11 03.0 +59.4	82.4	11 03.0 +59.4	82.4	12		
13	11 00.4 +57.9	80.8	11 09.9 +58.1	81.0	11 19.2 +58.4	81.2	11 28.2 +58.7	81.4	11 37.1 +58.8	81.6	11 45.7 +59.1	81.8	11 54.2 +59.2	82.0	12 02.4 +59.4	82.2	12 02.4 +59.4	82.2	12 02.4 +59.4	82.2	12 02.4 +59.4	82.2	13		
14	11 58.3 +57.9	80.6	12 08.0 +58.2	80.8	12 17.6 +58.4	81.0	12 26.9 +58.6	81.2	12 35.9 +58.9	81.4	12 44.8 +59.0	81.6	12 53.4 +59.2	81.9	13 01.8 +59.4	82.1	13 01.8 +59.4	82.1	13 01.8 +59.4	82.1	13 01.8 +59.4	82.1	14		
15	12 56.2 +57.8	80.3	13 06.2 +58.1	80.5	13 16.0 +58.3	80.7	13 25.5 +58.6	81.0	13 34.8 +58.8	81.2	13 43.8 +59.1	81.5	13 52.6 +59.2	81.7	14 01.2 +59.3	81.9	14 01.2 +59.3	81.9	14 01.2 +59.3	81.9	14 01.2 +59.3	81.9	15		
16	13 54.0 +57.9	80.0	14 04.3 +58.1	80.3	14 14.3 +58.4	80.5	14 24.1 +58.6	80.8	14 33.6 +58.9	81.0	14 42.9 +59.0	81.3	14 51.8 +59.3	81.5	15 00.5 +59.4	81.8	15 00.5 +59.4	81.8	15 00.5 +59.4	81.8	15 00.5 +59.4	81.8	16		
17	14 51.9 +57.8	79.7	15 02.4 +58.1	80.0	15 12.7 +58.4	80.3	15 22.7 +58.6	80.5	15 32.5 +58.8	80.8	15 41.9 +59.0	81.1	15 51.1 +59.2	81.4	15 59.9 +59.4	81.6	15 59.9 +59.4	81.6	15 59.9 +59.4	81.6	15 59.9 +59.4	81.6	17		
18	15 49.7 +57.8	79.5	16 00.5 +58.1	79.7	16 11.1 +58.3	80.0	16 21.3 +58.6	80.3	16 31.3 +58.8	80.6	16 40.9 +59.0	80.9	16 50.3 +59.2	81.2	16 59.3 +59.4	81.5	16 59.3 +59.4	81.5	16 59.3 +59.4	81.5	16 59.3 +59.4	81.5	18		
19	16 47.5 +57.8	79.2	16 58.6 +58.1	79.5	17 09.4 +58.3	79.8	17 19.9 +58.6	80.1	17 30.1 +58.8	80.4	17 39.9 +59.0	80.7	17 49.5 +59.1	81.0	17 58.7 +59.3	81.3	17 58.7 +59.3	81.3	17 58.7 +59.3	81.3	17 58.7 +59.3	81.3	19		
20	17 45.3 +57.7	78.9	17 56.7 +58.0	79.2	18 07.7 +58.3	79.5	18 18.5 +58.5	79.9	18 28.9 +58.8	80.2	18 38.9 +59.0	80.5	18 48.6 +59.2	80.9	18 58.0 +59.4	81.2	18 58.0 +59.4	81.2	18 58.0 +59.4	81.2	18 58.0 +59.4	81.2	20		
21	18 43.0 +57.8	78.6	18 54.7 +58.0	78.9	19 06.0 +58.3	79.3	19 17.0 +58.6	79.6	19 27.7 +58.7	80.0	19 37.9 +59.0	80.3	19 47.8 +59.2	80.7	19 57.4 +59.3	81.0	19 57.4 +59.3	81.0	19 57.4 +59.3	81.0	19 57.4 +59.3	81.0	21		
22	19 40.8 +57.7	78.3	19 52.7 +58.0	78.7	20 04.3 +58.3	79.0	20 15.6 +58.5	79.4	20 26.4 +58.8	79.8	20 36.9 +59.0	80.1	20 47.0 +59.2	80.5	20 56.7 +59.3	80.9	20 56.7 +59.3	80.9	20 56.7 +59.3	80.9	20 56.7 +59.3	80.9	22		
23	20 38.5 +57.6	78.0	20 50.7 +58.0	78.4	21 02.6 +58.2	78.8	21 14.1 +58.5	79.2	21 25.2 +58.7	79.5	21 35.9 +58.9	79.9	21 46.2 +59.1	80.3	21 56.0 +59.4	80.7	21 56.0 +59.4	80.7	21 56.0 +59.4	80.7	21 56.0 +59.4	80.7	23		
24	21 36.1 +57.7	77.7	21 48.7 +57.9	78.1	22 00.8 +58.2	78.5	22 12.6 +58.4	78.9	22 23.9 +58.7	79.3	22 34.8 +58.9	79.7	22 45.3 +59.1	80.1	22 55.4 +59.3	80.6	22 55.4 +59.3	80.6	22 55.4 +59.3	80.6	22 55.4 +59.3	80.6	24		
25	22 33.8 +57.6	77.4	22 46.6 +57.9	77.8	22 59.0 +58.2	78.3	23 11.0 +58.5	78.7	23 22.6 +58.7	79.1	23 33.7 +59.0	79.5	23 44.4 +59.2	80.0	23 54.7 +59.3	80.4	23 54.7 +59.3	80.4	23 54.7 +59.3	80.4	23 54.7 +59.3	80.4	25		
26	23 31.4 +57.6	77.1	23 44.5 +57.9	77.6	23 57.2 +58.2	78.0	24 09.5 +58.4	78.4	24 21.3 +58.7	78.9	24 32.7 +59.0	79.3	24 43.6 +59.1	79.8	24 54.0 +59.3	80.2	24 54.0 +59.3	80.2	24 54.0 +59.3	80.2	24 54.0 +59.3	80.2	26		
27	24 29.0 +57.5	76.8	24 42.4 +57.8	77.3	24 55.4 +58.1	77.7	25 07.9 +58.4	78.2	25 20.0 +58.6	78.6	25 31.6 +58.8	79.1	25 42.7 +59.0	79.6	25 53.3 +59.2	80.1	25 53.3 +59.2	80.1	25 53.3 +59.2	80.1	25 53.3 +59.2	80.1	27		
28	25 26.5 +57.5	76.5	25 40.2 +57.8	77.0	25 53.5 +58.1	77.4	26 06.3 +58.4	77.9	26 18.6 +58.7	78.4	26 30.4 +58.9	78.9	26 41.7 +59.1	79.4	26 52.5 +59.3	79.9	26 52.5 +59.3	79.9	26 52.5 +59.3	79.9	26 52.5 +59.3	79.9	28		
29	26 24.0 +57.4	76.2	26 38.0 +57.8	76.7	26 51.6 +58.1	77.1	27 04.7 +58.3	77.7	27 17.3 +58.6	78.2	27 29.3 +58.8	78.7	27 40.8 +59.1	79.2	27 51.8 +59.3	79.7	27 51.8 +59.3	79.7	27 51.8 +59.3	79.7	27 51.8 +59.3	79.7	29		
30	27 21.4 +57.4	75.9	27 35.8 +57.7	76.4	27 49.7 +58.0	76.9	28 03.0 +58.4	77.4	28 15.9 +58.5	77.9	28 28.1 +58.7	78.5	28 39.9 +59.0	79.0	28 51.1 +59.2	79.5	28 51.1 +59.2	79.5	28 51.1 +59.2	79.5	28 51.1 +59.2	79.5	30		
31	28 18.8 +57.4	75.5	28 33.5 +57.7	76.1	28 47.7 +58.0	76.6	29 01.4 +58.2	77.1	29 14.4 +58.6	77.7	29 27.0 +58.8	78.2	29 38.9 +59.0	78.8	29 50.3 +59.2	79.3	29 50.3 +59.2	79.3	29 50.3 +59.2	79.3	29 50.3 +59.2	79.3	31		
32	29 16.2 +57.3	75.2	29 31.2 +57.7	75.7	29 45.7 +58.0	76.3	30 13.0 +58.5	76.9	30 13.0 +58.5	77.4	30 25.8 +58.7	78.0	30 3												

85°, 275° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	1 17.6 +57.9	94.8	1 12.5 +58.2	94.9	1 07.4 +58.5	94.9	1 02.3 +58.7	94.9	0 57.2 +58.9	94.9	0 52.0 +59.1	94.9	0 46.9 +59.2	94.9	0 41.7 +59.4	95.0	0	0	,	,	,	0	0	0	0
1	2 15.5 +58.0	94.6	2 10.7 +58.2	94.6	2 05.9 +58.4	94.6	2 01.0 +58.7	94.7	1 56.1 +58.9	94.7	1 51.1 +59.1	94.8	1 46.1 +59.3	94.8	1 41.1 +59.4	94.8	1	2	3	3	4	4	5	6	7
2	3 13.5 +58.0	94.3	3 08.9 +58.3	94.4	3 04.3 +58.5	94.4	2 59.7 +58.7	94.5	2 55.0 +58.9	94.5	2 50.2 +59.1	94.6	2 45.4 +59.3	94.6	2 40.5 +59.5	94.7	2	3	4	5	6	7	8	9	10
3	4 11.5 +57.9	94.1	4 07.2 +58.2	94.1	4 02.8 +58.5	94.2	3 58.4 +58.7	94.3	3 53.9 +58.9	94.3	3 49.3 +59.1	94.4	3 44.7 +59.2	94.5	3 40.0 +59.4	94.5	3	4	5	6	7	8	9	10	11
4	5 09.4 +58.0	93.8	5 05.4 +58.2	93.9	5 01.3 +58.4	94.0	4 57.1 +58.7	94.1	4 52.8 +58.9	94.1	4 48.4 +59.1	94.2	4 43.9 +59.3	94.3	4 39.4 +59.4	94.4	4	5	6	7	8	9	10	11	12
5	6 07.4 +57.9	93.5	6 03.6 +58.2	93.6	5 59.7 +58.5	93.7	5 55.8 +58.6	93.9	5 51.7 +58.9	94.0	5 47.5 +59.1	94.1	5 43.2 +59.3	94.2	5 38.8 +59.4	94.3	5	6	7	8	9	10	11	12	13
6	7 05.3 +57.9	93.3	7 01.8 +58.2	93.4	6 58.2 +58.4	93.5	6 54.4 +58.7	93.6	6 50.6 +58.9	93.8	6 46.6 +59.1	93.9	6 42.5 +59.2	94.0	6 38.2 +59.4	94.1	6	7	8	9	10	11	12	13	14
7	8 03.2 +58.0	93.0	8 00.0 +58.2	93.2	7 56.6 +58.5	93.3	7 53.1 +58.7	93.4	7 49.5 +58.8	93.6	7 45.7 +59.0	93.7	7 41.7 +59.3	93.8	7 37.6 +59.4	94.0	7	8	9	10	11	12	13	14	15
8	9 01.2 +57.9	92.7	8 58.2 +58.2	92.9	8 55.1 +58.4	93.1	8 51.8 +58.7	93.2	8 48.3 +58.9	93.4	8 44.7 +59.1	93.5	8 40.0 +59.2	93.7	8 37.0 +59.4	93.8	8	9	10	11	12	13	14	15	16
9	9 59.1 +57.9	92.5	9 56.4 +58.2	92.7	9 53.5 +58.4	92.8	9 50.5 +58.6	93.0	9 47.2 +58.9	93.2	9 43.8 +59.1	93.4	9 40.2 +59.2	93.5	9 36.4 +59.4	93.7	9	10	11	12	13	14	15	16	17
10	10 57.0 +57.9	92.2	10 54.6 +58.1	92.4	10 51.9 +58.4	92.6	10 49.1 +58.7	92.8	10 46.1 +58.9	93.0	10 42.9 +59.0	93.2	10 39.4 +59.3	93.4	10 35.8 +59.4	93.5	10	11	12	13	14	15	16	17	18
11	11 54.9 +57.8	91.9	11 52.7 +58.2	92.2	11 50.3 +58.4	92.4	11 47.8 +58.6	92.6	11 45.0 +58.8	92.8	11 41.9 +59.1	93.0	11 38.7 +59.2	93.2	11 35.2 +59.4	93.4	11	12	13	14	15	16	17	18	19
12	12 52.7 +57.9	91.7	12 50.9 +58.1	91.9	12 48.7 +58.4	92.1	12 46.4 +58.6	92.4	12 43.8 +58.9	92.6	12 41.0 +59.0	92.8	12 37.9 +59.2	93.0	12 34.6 +59.4	93.3	12	13	14	15	16	17	18	19	20
13	13 50.6 +57.8	91.4	13 49.0 +58.1	91.7	13 47.1 +58.4	91.9	13 45.0 +58.6	92.1	13 42.7 +58.8	92.4	13 40.0 +59.1	92.6	13 37.1 +59.3	92.9	13 34.0 +59.4	93.1	13	14	15	16	17	18	19	20	21
14	14 48.4 +57.8	91.1	14 47.1 +58.1	91.4	14 45.5 +58.4	91.7	14 43.6 +58.6	91.9	14 41.5 +58.8	92.2	14 39.1 +59.0	92.4	14 36.4 +59.2	92.7	14 33.4 +59.4	93.0	14	15	16	17	18	19	20	21	22
15	15 46.2 +57.8	90.9	15 45.2 +58.1	91.1	15 43.9 +58.3	91.4	15 42.2 +58.6	91.7	15 40.3 +58.8	92.0	15 38.1 +59.0	92.3	15 35.6 +59.2	92.5	15 32.8 +59.3	92.8	15	16	17	18	19	20	21	22	23
16	16 44.0 +57.8	90.6	16 43.3 +58.0	90.9	16 42.2 +58.3	91.2	16 40.8 +58.6	91.5	16 39.1 +58.8	91.8	16 37.1 +59.0	92.1	16 34.8 +59.2	92.4	16 32.1 +59.4	92.7	16	17	18	19	20	21	22	23	24
17	17 41.8 +57.8	90.3	17 41.3 +58.1	90.6	17 40.5 +58.3	90.9	17 39.4 +58.6	91.2	17 37.9 +58.8	91.6	17 36.1 +59.0	91.9	17 34.0 +59.2	92.2	17 31.5 +59.4	92.5	17	18	19	20	21	22	23	24	25
18	18 39.6 +57.7	90.0	18 39.4 +58.0	90.3	18 38.8 +58.2	90.7	18 38.0 +58.5	91.0	18 36.7 +58.8	91.4	18 35.1 +59.0	91.7	18 33.2 +59.2	92.0	18 30.9 +59.3	92.4	18	19	20	21	22	23	24	25	26
19	19 37.3 +57.7	89.7	19 37.4 +58.0	90.1	19 37.1 +58.3	90.4	19 36.5 +58.5	90.8	19 35.5 +58.7	91.1	19 34.1 +59.0	91.5	19 32.4 +59.1	91.9	19 30.2 +59.4	92.2	19	20	21	22	23	24	25	26	27
20	20 35.0 +57.6	89.4	20 35.4 +57.9	89.8	20 35.4 +58.2	90.2	20 35.0 +58.5	90.6	20 34.2 +58.8	90.9	20 33.1 +58.9	91.3	20 31.5 +59.2	91.7	20 29.6 +59.3	92.0	20	21	22	23	24	25	26	27	28
21	21 32.6 +57.7	89.1	21 33.3 +58.0	89.5	21 33.6 +58.3	89.9	21 33.5 +58.5	90.3	21 33.0 +58.7	90.7	21 32.0 +59.0	91.1	21 30.7 +59.1	91.5	21 28.9 +59.3	91.9	21	22	23	24	25	26	27	28	29
22	22 30.3 +57.6	88.8	22 31.3 +57.9	89.2	22 31.9 +58.2	89.7	22 32.0 +58.5	90.1	22 31.7 +58.7	90.5	22 31.0 +58.9	90.9	22 29.8 +59.2	91.3	22 28.2 +59.3	91.7	22	23	24	25	26	27	28	29	30
23	23 27.9 +57.5	88.5	23 29.2 +57.9	89.0	23 30.1 +58.1	89.4	23 30.5 +58.4	89.8	23 30.4 +58.7	90.3	23 29.9 +58.9	90.7	23 29.0 +59.1	91.1	23 27.5 +59.4	91.6	23	24	25	26	27	28	29	30	31
24	24 25.4 +57.6	88.2	24 27.1 +57.8	88.7	24 28.2 +58.2	89.1	24 28.9 +58.4	89.6	24 29.1 +58.7	90.0	24 28.8 +58.9	90.5	24 28.1 +59.1	90.9	24 26.9 +59.2	91.4	24	25	26	27	28	29	30	31	32
25	25 23.0 +57.4	87.9	25 24.9 +57.8	88.4	25 26.4 +58.1	88.9	25 27.3 +58.4	89.3	25 27.8 +58.6	89.8	25 27.7 +58.9	90.3	25 27.2 +59.1	90.8	25 26.1 +59.3	91.2	25	26	27	28	29	30	31	32	33
26	26 20.4 +57.5	87.6	26 22.7 +57.8	88.1	26 24.5 +58.0	88.6	26 25.7 +58.4	89.1	26 26.4 +58.6	89.6	26 26.6 +58.9	90.1	26 26.3 +59.1	90.6	26 25.4 +59.3	91.1	26	27	28	29	30	31	32	33	34
27	27 17.9 +57.4	87.3	27 20.5 +57.7	87.8	27 22.5 +58.1	88.3	27 24.1 +58.3	88.8	27 25.0 +58.6	89.3	27 25.5 +58.8	89.8	27 25.4 +59.0	90.4	27 24.7 +59.3	90.9	27	28	29	30	31	32	33	34	35
28	28 15.3 +57.3	86.9	28 18.2 +57.7	87.5	28 20.6 +58.0	88.0	28 22.4 +58.3	88.5	28 23.6 +58.6	89.1	28 24.3 +58.8	89.6	28 24.4 +59.1	90.2	28 24.0 +59.2	90.7	28	29	30	31	32	33	34	35	36
29	29 12.6 +57.3	86.6	29 15.9 +57.6	87.2	29 18.6 +58.0	87.7	29 20.7 +58.3	88.3	29 22.2 +58.5	88.8	29 23.1 +58.9	89.4	29 23.5 +59.0	90.0	29 23.2 +59.2	90.5	29	30	31	32	33	34	35	36	37
30	30 09.9 +57.3	86.3	30 13.5 +57.6	86.8	30 16.6 +57.9	87.4	30 19.0 +58.2	88.0	30 20.7 +58.6	88.6	30 21.9 +58.8	89.2	30 22.5 +59.0	89.8	30 22.4 +59.2	90.3	30	31	32	33	34	35	36	37	38
31	31 07.2 +57.2	85.9	31 11.1 +57.6	86.5	31 14.5 +57.9	87.1	31 17.2 +58.2	87.7	31 19.3 +58.4	88.3	31 20.7 +58.7	88.9	31 21.4 +59.0	89.5	31 21.6 +59.2	90.2	31	32	33	34	35	36	37	38	39
32	32 04.4 +57.1	85.5	32 08.7 +57.5	86.2	32 12.4 +57.8	86.8	32 15.4 +58.1	87.4	32 17.7 +58.5	88.1	32 19.4 +58.7	88.7	32 20.5 +58.9	89.3	32 20.8 +59.2	90.0	32	33	34	35	36	37	38	39	40
33	33 01.5 +57.0	85.2	33 06.2 +57.4	85.8	33 10.2 +57.8	86.5	33 13.5 +58.1	87.1	33 16.2 +58.4	87.8	33 18.1 +58.7	88.5	33 19.4 +59.0	89.1	33 20.0 +59.2	89.8	33	34	35	36	37	38	39	40	41
34	34 58.5 +57.0	84.8	34 03.6 +57.4	85.4	34 08.0 +57.7	86.2	34 11.6 +58.1	86.8	34 14.7 +58.3	87.0	34 17.2 +58.7	87.3	34 19.7 +59.1	87.9	34 21.2 +59.5	88.5	34	35	36	37	38	39	40	41</	

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 85°, 275°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z																						
0	1 17.6 -58.0	94.8		1 12.5 -58.2	94.9		1 07.4 -58.5	94.9		1 02.3 -58.7	94.9		0 57.2 -58.9	94.9		0 52.0 -59.1	94.9		0 46.9 -59.3	94.9		0 41.7 -59.4	95.0		0
1	0 19.6 -58.0	95.1		0 14.3 -58.3	95.1		0 08.9 -58.4	95.1		0 03.6 -58.7	95.1		0 01.7 +58.9	84.9		0 07.1 +59.1	84.9		0 12.4 +59.3	84.9		0 17.7 +59.4	84.9		1
2	0 38.4 +58.0	84.7		0 44.0 +58.2	84.7		0 49.5 +58.5	84.7		0 55.1 +58.7	84.7		1 00.6 +58.9	84.7		1 06.2 +59.1	84.7		1 11.7 +59.2	84.7		1 17.1 +59.5	84.8		2
3	1 36.4 +57.9	84.4		1 42.2 +58.2	84.4		1 48.0 +58.5	84.5		1 53.8 +58.7	84.5		1 59.5 +58.9	84.5		2 05.3 +59.0	84.6		2 10.9 +59.3	84.6		2 16.6 +59.4	84.6		3
4	2 34.3 +58.0	84.1		2 40.4 +58.3	84.2		2 46.5 +58.5	84.2		2 52.5 +58.7	84.3		2 58.4 +59.0	84.3		3 04.3 +59.1	84.4		3 10.2 +59.3	84.4		3 16.0 +59.4	84.5		4
5	3 32.3 +58.0	83.9		3 38.7 +58.2	83.9		3 45.0 +58.4	84.0		3 51.2 +58.7	84.1		3 57.4 +58.8	84.1		4 03.4 +59.1	84.2		4 09.5 +59.2	84.3		4 15.4 +59.4	84.4		5
6	4 30.3 +57.9	83.6		4 36.9 +58.2	83.7		4 43.4 +58.5	83.8		4 49.9 +58.7	83.9		4 56.2 +58.9	83.9		5 02.5 +59.1	84.0		5 08.7 +59.3	84.1		5 14.8 +59.4	84.2		6
7	5 28.2 +58.0	83.4		5 35.1 +58.2	83.5		5 41.9 +58.4	83.6		5 48.6 +58.7	83.7		5 55.1 +58.9	83.8		6 01.6 +59.1	83.9		6 08.0 +59.2	84.0		6 14.2 +59.4	84.1		7
8	6 26.2 +57.9	83.1		6 33.3 +58.2	83.2		6 40.3 +58.5	83.3		6 47.3 +58.6	83.4		6 54.0 +58.9	83.6		7 00.7 +59.1	83.7		7 07.2 +59.3	83.8		7 13.6 +59.5	83.9		8
9	7 24.1 +57.9	82.8		7 31.5 +58.2	83.0		7 38.8 +58.4	83.1		7 45.9 +58.7	83.2		7 52.9 +58.9	83.4		8 06.5 +59.2	83.7		8 13.1 +59.4	83.8		8 19.1 +59.6	83.9		9
10	8 22.0 +58.0	82.6		8 29.7 +58.2	82.7		8 37.2 +58.5	82.9		8 44.6 +58.7	83.0		8 51.8 +58.9	83.2		8 58.9 +59.0	83.3		9 05.7 +59.3	83.5		9 12.5 +59.4	83.7		10
11	9 20.0 +57.9	82.3		9 27.9 +58.2	82.5		9 35.7 +58.4	82.6		9 43.3 +58.6	82.8		9 50.7 +58.9	83.0		9 57.9 +59.1	83.2		10 05.0 +59.2	83.3		10 11.9 +59.4	83.5		11
12	10 17.9 +57.9	82.0		10 26.1 +58.1	82.2		10 34.1 +58.4	82.4		10 41.9 +58.7	82.6		10 49.6 +58.8	82.8		10 57.0 +59.0	83.0		11 04.2 +59.3	83.2		11 11.3 +59.4	83.4		12
13	11 15.8 +57.8	81.8		11 24.2 +58.2	82.0		11 32.5 +58.4	82.2		11 40.6 +58.6	82.4		11 48.4 +58.9	82.6		11 56.0 +59.1	82.8		12 03.5 +59.2	83.0		12 10.7 +59.3	83.2		13
14	12 13.6 +57.9	81.5		12 22.4 +58.1	81.7		12 30.9 +58.4	81.9		12 39.2 +58.6	82.2		12 47.3 +58.8	82.4		12 55.1 +59.0	82.6		13 02.7 +59.2	82.8		13 10.0 +59.4	83.1		14
15	13 11.5 +57.9	81.2		13 20.5 +58.1	81.5		13 29.3 +58.4	81.7		13 37.8 +58.6	81.9		13 46.1 +58.8	82.2		13 54.1 +59.1	82.4		14 01.9 +59.2	82.7		14 09.4 +59.4	82.9		15
16	14 09.4 +57.8	81.0		14 18.6 +58.2	81.2		14 27.7 +58.3	81.5		14 36.4 +58.7	81.7		14 44.9 +58.9	82.0		14 53.2 +59.0	82.2		15 01.1 +59.2	82.5		15 08.8 +59.4	82.8		16
17	15 07.2 +57.8	80.7		15 16.8 +58.0	81.0		15 26.0 +58.4	81.2		15 35.1 +58.5	81.5		15 43.8 +58.8	81.8		15 52.2 +59.0	82.1		16 00.3 +59.2	82.3		16 08.2 +59.4	82.6		17
18	16 05.0 +57.8	80.4		16 14.8 +58.1	80.7		16 24.4 +58.3	81.0		16 33.6 +58.6	81.3		16 42.6 +58.8	81.6		16 51.2 +59.0	81.9		16 59.5 +59.2	82.2		17 07.6 +59.3	82.5		18
19	17 02.8 +57.7	80.1		17 12.9 +58.1	80.4		17 22.7 +58.3	80.7		17 32.2 +58.6	81.1		17 41.4 +58.8	81.4		17 50.2 +59.0	81.7		17 58.7 +59.2	82.0		18 06.9 +59.4	82.3		19
20	18 00.5 +57.8	79.8		18 11.0 +58.0	80.2		18 21.0 +58.3	80.5		18 30.8 +58.5	80.8		18 40.2 +58.7	81.2		18 49.2 +59.0	81.5		18 57.9 +59.2	81.8		19 06.3 +59.3	82.2		20
21	18 58.3 +57.7	79.6		19 09.0 +58.0	79.9		19 19.3 +58.3	80.2		19 29.3 +58.5	80.6		19 38.9 +58.8	80.9		19 48.2 +59.0	81.3		19 57.1 +59.2	81.7		20 05.6 +59.4	82.0		21
22	19 56.0 +57.7	79.3		20 07.0 +58.0	79.6		20 17.6 +58.3	80.0		20 27.8 +58.5	80.4		20 37.7 +58.7	80.7		20 47.2 +58.9	81.1		20 56.3 +59.1	81.5		21 05.0 +59.3	81.9		22
23	20 53.7 +57.6	79.0		21 05.0 +57.9	79.4		21 15.9 +58.2	79.7		21 26.3 +58.5	80.1		21 36.4 +58.8	80.5		21 46.1 +59.0	80.9		21 55.4 +59.2	81.3		22 04.3 +59.3	81.7		23
24	21 51.3 +57.7	78.7		22 02.9 +57.9	79.1		22 14.1 +58.2	79.5		22 24.8 +58.5	79.9		22 35.2 +58.7	80.3		22 45.1 +58.9	81.1		23 03.6 +59.3	81.5		23 10.6 +59.4	81.7		24
25	22 49.0 +57.6	78.4		23 00.8 +57.9	78.8		23 12.3 +58.2	79.2		23 23.3 +58.4	79.6		23 33.9 +58.7	80.1		23 44.0 +58.9	80.5		23 53.7 +59.1	80.9		24 02.9 +59.3	81.4		25
26	23 46.6 +57.5	78.1		23 58.7 +57.9	78.5		24 10.5 +58.1	78.9		24 21.7 +58.5	79.4		24 32.6 +58.6	79.8		24 42.9 +58.9	80.3		24 52.8 +59.1	80.7		25 02.2 +59.3	81.2		26
27	24 44.1 +57.5	77.8		24 56.6 +57.8	78.2		25 08.6 +58.1	78.7		25 20.2 +58.3	79.1		25 31.2 +58.7	79.6		25 41.8 +58.9	80.1		25 51.9 +59.1	80.6		26 01.5 +59.3	81.0		27
28	25 41.6 +57.5	77.4		25 54.4 +57.8	77.9		26 06.7 +58.1	78.4		26 18.5 +58.4	78.9		26 29.9 +58.6	79.4		26 40.7 +58.8	79.9		26 51.0 +59.1	80.4		27 00.8 +59.2	80.9		28
29	26 39.1 +57.4	77.1		26 52.2 +57.7	77.6		27 04.8 +58.1	78.1		27 16.9 +58.3	78.6		27 28.5 +58.6	79.1		27 39.5 +58.9	79.6		27 50.1 +59.0	80.2		28 00.0 +59.3	80.7		29
30	27 36.5 +57.4	76.8		27 49.9 +57.8	77.3		28 02.9 +58.0	77.8		28 15.2 +58.3	78.4		28 27.1 +58.5	78.9		28 38.4 +58.8	79.4		28 49.1 +59.0	80.0		28 59.3 +59.2	80.5		30
31	28 33.9 +57.3	76.5		28 47.7 +57.6	77.0		29 00.9 +58.0	77.5		29 13.5 +58.3	78.1		29 25.6 +58.6	78.6		29 37.2 +58.8	79.2		29 48.1 +59.1	79.8		29 58.5 +59.2	80.3		31
32	29 31.2 +57.3	76.1		29 45.3 +57.6	76.7		29 58.9 +57.9	77.2		30 11.8 +58.2	77.8		30 24.2 +58.5	78.4		30 36.0 +58.7	79.0		30 47.2 +59.0	79.5		30 57.7 +59.2	80.1		32
33	30 28.5 +57.2	75.8		30 42.9 +57.6	76.4		30 56.8 +57.9	76.9		31 10.0 +58.2	77.5		31 22.7 +58.5	78.1		31 34.7 +58.8	78.7		31 46.2 +58.9	79.3		31 56.9 +59.2	79.9		33
34	31 25.7 +57.2	75.4		31 40.5 +57.5	76.0		31 54.7 +57.8	76.6		32 08.2 +58.2	77.2		32 21.2 +58.4	77.9		32 33.5 +58.7	78.5		32 45.1 +59.0	79.1		32 56.1 +59.2	79.7		34
35	32 22.9 +57.1	75.1		32 38.0 +57.5	75.7		32 52.5 +57.8	76.3		33 06.4 +58.1	77.0		33 19.6 +58.4	77.6		33 32.2 +58.7	78.2		33 44.1 +58.9	78.9		33 55.3 +59.1	79.5		35
36	33 20.0 +57.0	74.7		33 35.5 +57.4	75.4		33 50.3 +57.8	76.0		34 04.5 +58.1	76.7		34 18.0 +58.4	77.3		34 30.9 +58.6	78.0		34 43.0 +58.9	78.7		34 54.4 +59.2	79.3		36
37	34 17.0 +57.0	74.3		34 32.9 +57.3	75.0		34 48.1 +57.7	75.7		35 02.6 +58.0	76.4		35 16.4 +58.3	77.0		35 29.5 +58.6	77.7		35 41.9 +58.9	78.4		35 53.6 +59.1	79.1		37
38	35 14.0 +56.9	74.0																							

86°, 274° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	1 02.1 +57.9	93.9	0 58.0 +58.2	93.9	0 53.9 +58.5	93.9	0 49.9 +58.7	93.9	0 45.8 +58.9	93.9	0 41.6 +59.1	93.9	0 37.5 +59.3	94.0	0 33.4 +59.4	94.0	0 30.5 +59.4	93.3	5 33.8 +59.3	93.2	5 30.5 +59.4	93.3	5		
1	2 00.0 +58.0	93.6	1 56.2 +58.3	93.6	1 52.4 +58.5	93.7	1 48.6 +58.6	93.7	1 44.7 +58.9	93.7	1 40.7 +59.1	93.8	1 36.8 +59.2	93.8	1 32.8 +59.4	93.8	1 30.0 +59.4	93.8	1 28.2 +59.4	93.8	1 26.0 +59.4	93.7	1		
2	2 58.0 +58.0	93.3	2 54.5 +58.2	93.4	2 50.9 +58.4	93.4	2 47.2 +58.7	93.5	2 43.6 +58.9	93.5	2 39.8 +59.1	93.6	2 36.0 +59.3	93.6	2 32.2 +59.4	93.7	2 29.3 +59.4	93.7	2 26.0 +59.4	93.6	2 23.2 +59.4	93.7	2		
3	3 56.0 +57.9	93.1	3 52.7 +58.2	93.2	3 49.3 +58.5	93.2	3 45.9 +58.7	93.3	3 42.5 +58.9	93.4	3 38.9 +59.1	93.4	3 35.3 +59.3	93.5	3 31.6 +59.4	93.5	3 28.1 +59.4	93.5	3 25.1 +59.4	93.5	3 21.6 +59.4	93.4	3		
4	4 53.9 +58.0	92.8	4 50.9 +58.2	92.9	4 47.8 +58.5	93.0	4 44.6 +58.7	93.1	4 41.4 +58.9	93.2	4 38.0 +59.1	93.2	4 34.6 +59.2	93.3	4 31.0 +59.5	93.4	4 27.6 +59.5	93.4	4 24.1 +59.5	93.4	4 21.0 +59.5	93.4	4		
5	5 51.9 +57.9	92.6	5 49.1 +58.2	92.7	5 46.3 +58.4	92.8	5 43.3 +58.7	92.9	5 40.3 +58.8	93.0	5 37.1 +59.1	93.1	5 33.8 +59.3	93.2	5 30.5 +59.4	93.3	5 27.3 +59.4	93.3	5 24.1 +59.4	93.3	5 20.6 +59.4	93.3	5		
6	6 49.8 +57.9	92.3	6 47.3 +58.2	92.4	6 44.7 +58.5	92.5	6 42.0 +58.7	92.6	6 39.1 +58.9	92.8	6 36.2 +59.1	92.9	6 33.1 +59.2	93.0	6 29.9 +59.4	93.1	6 26.7 +59.4	93.1	6 23.5 +59.4	93.1	6 20.3 +59.4	93.1	6		
7	7 47.7 +57.9	92.0	7 45.5 +58.2	92.2	7 43.2 +58.4	92.3	7 40.7 +58.6	92.5	7 38.0 +58.9	92.6	7 35.3 +59.0	92.7	7 32.3 +59.3	92.9	7 29.3 +59.4	93.0	7 26.3 +59.4	93.0	7 23.3 +59.4	93.0	7 20.3 +59.4	93.0	7		
8	8 45.6 +58.0	91.8	8 43.7 +58.2	91.9	8 41.6 +58.4	92.1	8 39.3 +58.7	92.2	8 36.9 +58.9	92.4	8 34.3 +59.1	92.5	8 31.6 +59.2	92.7	8 28.7 +59.4	92.8	8 25.5 +59.4	92.8	8 22.5 +59.4	92.8	8 19.3 +59.4	92.8	8		
9	9 43.6 +57.9	91.5	9 41.9 +58.2	91.7	9 40.0 +58.4	91.9	9 38.0 +58.6	92.0	9 35.8 +58.9	92.2	9 33.4 +59.1	92.4	9 30.8 +59.3	92.5	9 28.1 +59.4	92.7	9 25.1 +59.4	92.7	9 22.1 +59.4	92.7	9 19.1 +59.4	92.7	9		
10	10 41.5 +57.8	91.2	10 40.1 +58.1	91.4	10 38.4 +58.5	91.6	10 36.6 +58.7	91.8	10 34.7 +58.8	92.0	10 32.5 +59.0	92.2	10 30.1 +59.2	92.4	10 27.5 +59.4	92.6	10 24.4 +59.4	92.6	10 21.3 +59.4	92.6	10 18.3 +59.4	92.6	10		
11	11 39.3 +57.9	91.0	11 38.2 +58.2	91.2	11 36.9 +58.4	91.4	11 35.3 +58.6	91.6	11 33.5 +58.9	91.8	11 31.5 +59.1	92.0	11 29.3 +59.2	92.2	11 26.9 +59.4	92.4	11 24.1 +59.4	92.4	11 21.1 +59.4	92.4	11 18.1 +59.4	92.4	11		
12	12 37.2 +57.9	90.7	12 36.4 +58.1	90.9	12 35.5 +58.3	91.2	12 33.9 +58.7	91.4	12 32.4 +58.8	91.6	12 30.6 +59.0	91.8	12 28.5 +59.3	92.0	12 26.3 +59.4	92.3	12 23.2 +59.4	92.3	12 20.1 +59.4	92.3	12 17.0 +59.4	92.3	12		
13	13 35.1 +57.8	90.4	13 34.5 +58.1	90.7	13 33.6 +58.4	90.9	13 32.6 +58.6	91.2	13 31.2 +58.8	91.4	13 29.6 +59.1	91.6	13 27.8 +59.2	91.9	13 25.7 +59.4	92.1	13 23.6 +59.4	92.1	13 21.5 +59.4	92.1	13 19.4 +59.4	92.1	13		
14	14 32.9 +57.8	90.2	14 32.6 +58.1	90.4	14 32.0 +58.4	90.7	14 31.2 +58.6	90.9	14 30.0 +58.9	91.2	14 28.7 +59.0	91.5	14 27.0 +59.2	91.7	14 25.1 +59.3	92.0	14 23.1 +59.3	92.0	14 21.0 +59.3	92.0	14 18.9 +59.3	92.0	14		
15	15 30.7 +57.8	89.9	15 30.7 +58.1	90.2	15 30.4 +58.3	90.4	15 29.8 +58.6	90.7	15 28.9 +58.8	91.0	15 27.7 +59.0	91.3	15 26.2 +59.2	91.5	15 24.4 +59.4	91.8	15 22.4 +59.4	91.8	15 20.3 +59.4	91.8	15 18.2 +59.4	91.8	15		
16	16 28.5 +57.8	89.6	16 28.8 +58.0	89.9	16 28.7 +58.3	90.2	16 28.4 +58.5	90.5	16 27.7 +58.8	90.8	16 26.7 +59.0	91.1	16 25.4 +59.2	91.4	16 23.8 +59.4	91.7	16 21.7 +59.4	91.7	16 19.6 +59.4	91.7	16 17.5 +59.4	91.7	16		
17	17 26.3 +57.7	89.3	17 26.8 +58.1	89.6	17 27.0 +58.3	90.0	17 26.9 +58.6	90.3	17 26.5 +58.8	90.6	17 25.7 +59.0	90.9	17 24.6 +59.2	91.2	17 23.2 +59.3	91.5	17 21.1 +59.3	91.5	17 18.9 +59.3	91.5	17 16.8 +59.3	91.5	17		
18	18 24.0 +57.8	89.0	18 24.9 +58.0	89.4	18 25.3 +58.3	89.7	18 25.5 +58.5	90.0	18 25.3 +58.7	90.4	18 24.7 +59.0	90.7	18 23.8 +59.2	91.0	18 22.5 +59.4	91.4	18 20.4 +59.4	91.4	18 18.3 +59.4	91.4	18 16.2 +59.4	91.4	18		
19	19 21.8 +57.7	88.8	19 22.9 +58.0	89.1	19 23.6 +58.3	89.5	19 24.0 +58.5	89.8	19 24.0 +58.8	90.2	19 23.7 +59.0	90.5	19 23.0 +59.1	90.9	19 21.9 +59.3	91.2	19 20.8 +59.3	91.2	19 19.7 +59.3	91.2	19 18.6 +59.3	91.2	19		
20	20 19.5 +57.6	88.5	20 20.9 +57.9	88.8	20 21.9 +58.2	89.2	20 22.5 +58.5	89.6	20 22.8 +58.7	89.9	20 22.7 +58.9	90.3	20 22.1 +59.2	90.7	20 21.2 +59.4	91.1	20 20.3 +59.4	91.1	20 19.4 +59.4	91.1	20 18.5 +59.4	91.1	20		
21	21 17.1 +57.7	88.2	21 18.8 +58.0	88.6	21 20.1 +58.3	88.9	21 21.0 +58.5	89.3	21 21.5 +58.8	89.7	21 21.6 +59.0	90.1	21 21.3 +59.1	90.5	21 20.6 +59.3	90.9	21 19.7 +59.3	90.9	21 18.8 +59.3	90.9	21 17.9 +59.3	90.9	21		
22	22 14.8 +57.6	87.9	22 16.8 +57.9	88.3	22 18.4 +58.2	88.7	22 19.5 +58.5	89.1	22 20.3 +58.7	89.5	22 20.6 +58.9	89.9	22 20.4 +59.2	90.3	22 19.9 +59.3	90.7	22 19.3 +59.3	90.7	22 18.7 +59.3	90.7	22 18.1 +59.3	90.7	22		
23	23 12.4 +57.5	87.6	23 14.7 +57.9	88.0	23 16.6 +58.1	88.4	23 18.0 +58.4	88.9	23 19.0 +58.7	89.3	23 19.5 +58.9	89.7	23 19.6 +59.1	90.1	23 19.2 +59.3	90.6	23 18.8 +59.3	90.6	23 18.4 +59.3	90.6	23 17.9 +59.3	90.6	23		
24	24 09.9 +57.5	87.3	24 12.6 +57.8	87.7	24 14.7 +58.2	88.2	24 16.4 +58.4	88.6	24 17.7 +58.6	89.1	24 18.4 +58.9	89.5	24 18.7 +59.1	90.0	24 18.5 +59.3	90.4	24 18.3 +59.3	90.4	24 18.1 +59.3	90.4	24 17.9 +59.3	90.4	24		
25	25 07.4 +57.5	86.9	25 10.4 +57.8	87.4	25 12.9 +58.1	87.9	25 14.8 +58.4	88.4	25 16.3 +58.7	88.8	25 17.3 +58.9	89.3	25 17.8 +59.1	89.8	25 17.8 +59.3	90.2	25 17.3 +59.3	90.2	25 17.1 +59.3	90.2	25 16.9 +59.3	90.2	25		
26	26 04.9 +57.5	86.6	26 08.2 +57.8	87.1	26 11.0 +58.1	87.6	26 13.2 +58.4	88.1	26 15.0 +58.6	88.6	26 16.2 +58.8	89.1	26 16.9 +59.1	89.6	26 17.1 +59.2	90.1	26 16.7 +59.2	90.1	26 16.5 +59.2	90.1	26 16.3 +59.2	90.1	26		
27	27 02.4 +57.4	86.3	27 06.0 +57.7	86.8	27 09.1 +58.0	87.3	27 11.6 +58.3	87.8	27 13.6 +58.6	88.3	27 15.0 +58.9	88.9	27 16.0 +59.0	89.4	27 16.3 +59.3	89.9	27 16.0 +59.3	89.9	27 15.7 +59.3	89.9	27 15.4 +59.3	89.9	27		
28	27 59.8 +57.3	86.0	28 03.7 +57.7	86.5	28 07.1 +58.0	87.0	28 09.9 +58.3	87.6	28 12.2 +58.6	88.1	28 13.9 +58.8	88.6	28 15.6 +59.1	89.2	28 17.3 +59.4	89.7	28 15.6 +59.4	89.7	28 14.5 +59.4	89.7	28 13.4 +59.4	89.7	28		
29	28 57.1 +57.3	85.6	29 01.4 +57.7	85.1	29 04.9 +57.4	85.1	29 03.2 +56.1	77.1	29 01.6 +56.0	78.4	29 02.7 +56.2	79.8	29 04.3 +57.2	80.9	29 02.0 +57.3	81.2	29 01.7 +57.3	81.2	29 01.4 +57.3	81.2	29 01.1 +57.3	81.2	29		
30	29 54.4 +57.3	85.3	29 09.1 +57.6	85.9	30 03.1 +57.9	86.4	30 06.5 +58.2	87.0	30 09.3 +58.5	87.6	30 11.5 +58.8	88.2	30 13.1 +59.0	88.8	30 14.1 +59.2	89.4	30 12.0 +59.2	89.4	30 10.9 +59.2	89.4	30 08.8 +59.2	89.4	30		
31	30 51.7 +57.2	85.0	30 56.7 +57.5	85.5	31 01.0 +57.9	86.1	31 04.7 +58.2	86.7	31 07.8 +58.5	87.3	31 10.3 +58.7	88.0	31 12.1 +59.0	88.6	31 13.3 +59.2	89.2	31 11.1 +59.2	89.2	31 08.9 +59.2	89.2	31 06.7 +59.2	89.2	31		
32	31 48.9 +57.1	84.6	31 54.2 +57.5	85.2	31 58.9 +57.8	85.8	32 02.9 +58.2	86.5</																	

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 86°, 274°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z			
0	1 02.1 -58.0	93.9	0 58.0 -58.2	93.9	0 53.9 -58.4	93.9	0 49.9 -58.7	93.9	0 45.8 -58.9	93.9	0 41.6 -59.1	93.9	0 37.5 -59.3	94.0	0 33.4 -59.4	94.0	0 29.1 +59.5	85.9	0 26.0 +59.5	85.9	0 22.8 +59.2	85.9	0 21.8 +59.2	85.9	0 20.2 +59.4	84.5	1
1	0 04.1 -58.0	94.1	0 00.2 +58.2	85.9	0 04.5 +58.5	85.9	0 08.8 +58.7	85.9	0 13.1 +58.9	85.9	0 17.5 +59.0	85.9	0 21.0 +59.3	85.7	1 25.5 +59.4	85.8	1 25.5 +59.4	85.8	1 25.5 +59.4	85.8	1 25.5 +59.4	85.8	1 25.5 +59.4	85.8	1 25.5 +59.4	85.8	2
2	0 53.9 +57.9	85.6	0 58.4 +58.3	85.6	1 03.0 +58.5	85.7	1 07.5 +58.7	85.7	1 12.0 +58.9	85.7	1 16.5 +59.1	85.7	1 21.0 +59.3	85.7	2 24.9 +59.4	85.6	2 24.9 +59.4	85.6	2 24.9 +59.4	85.6	2 24.9 +59.4	85.6	2 24.9 +59.4	85.6	3		
3	1 51.8 +58.0	85.4	1 56.7 +58.2	85.4	2 01.5 +58.4	85.4	2 06.2 +58.7	85.5	2 10.9 +59.0	85.5	2 15.6 +59.1	85.5	2 20.3 +59.2	85.6	3 24.3 +59.4	85.5	3 24.3 +59.4	85.5	3 24.3 +59.4	85.5	3 24.3 +59.4	85.5	3 24.3 +59.4	85.5	4		
4	2 49.8 +57.9	85.1	2 54.9 +58.2	85.2	2 59.9 +58.5	85.2	3 04.9 +58.7	85.3	3 09.9 +58.8	85.3	3 14.7 +59.1	85.4	3 19.5 +59.3	85.4	4 23.7 +59.4	85.3	4 23.7 +59.4	85.3	4 23.7 +59.4	85.3	4 23.7 +59.4	85.3	4 23.7 +59.4	85.3	5		
5	3 47.7 +58.0	84.8	3 53.1 +58.2	84.9	3 58.4 +58.5	85.0	4 03.6 +58.7	85.0	4 08.7 +58.9	85.1	4 13.8 +59.1	85.2	4 18.8 +59.3	85.3	5 23.1 +59.4	85.2	5 23.1 +59.4	85.2	5 23.1 +59.4	85.2	5 23.1 +59.4	85.2	5 23.1 +59.4	85.2	6		
6	4 45.7 +57.9	84.6	4 51.3 +58.2	84.7	4 56.9 +58.4	84.8	5 02.3 +58.7	84.8	5 07.6 +58.9	84.9	5 12.9 +59.1	85.0	5 18.1 +59.2	85.1	5 23.1 +59.4	85.2	5 23.1 +59.4	85.2	5 23.1 +59.4	85.2	5 23.1 +59.4	85.2	6				
7	5 43.6 +58.0	84.3	5 49.5 +58.2	84.4	5 55.3 +58.5	84.5	6 01.0 +58.7	84.6	6 06.5 +58.9	84.7	6 12.0 +59.1	84.8	6 17.3 +59.3	85.0	6 22.5 +59.5	85.1	6 22.5 +59.5	85.1	6 22.5 +59.5	85.1	6 22.5 +59.5	85.1	7				
8	6 41.6 +57.9	84.1	6 47.7 +58.2	84.2	6 53.8 +58.4	84.3	6 59.7 +58.6	84.4	7 05.4 +58.9	84.5	7 11.1 +59.0	84.7	7 16.6 +59.2	84.8	7 22.0 +59.4	84.9	7 22.0 +59.4	84.9	7 22.0 +59.4	84.9	7 22.0 +59.4	84.9	8				
9	7 39.5 +57.9	83.8	7 45.9 +58.2	83.9	7 52.2 +58.4	84.1	7 58.3 +58.7	84.2	8 04.3 +58.9	84.3	8 10.1 +59.1	84.5	8 15.8 +59.3	84.6	8 21.4 +59.4	84.8	8 21.4 +59.4	84.8	8 21.4 +59.4	84.8	8 21.4 +59.4	84.8	9				
10	8 37.4 +58.0	83.5	8 44.1 +58.2	83.7	8 50.6 +58.5	83.8	8 57.0 +58.7	84.0	9 03.2 +58.9	84.2	9 09.2 +59.1	84.3	9 15.1 +59.2	84.5	9 20.8 +59.4	84.6	9 20.8 +59.4	84.6	9 20.8 +59.4	84.6	9 20.8 +59.4	84.6	10				
11	9 35.4 +57.9	83.3	9 42.3 +58.2	83.4	9 49.1 +58.4	83.6	9 55.7 +58.6	83.8	10 02.1 +58.8	84.0	10 08.3 +59.0	84.1	10 14.3 +59.3	84.3	10 20.2 +59.4	84.5	10 20.2 +59.4	84.5	10 20.2 +59.4	84.5	10 20.2 +59.4	84.5	11				
12	10 33.3 +57.8	83.0	10 40.5 +58.1	83.2	10 47.5 +58.4	83.4	10 54.3 +58.6	83.6	11 00.9 +58.9	83.8	11 07.3 +59.1	84.0	11 13.6 +59.2	84.2	11 19.6 +59.4	84.4	11 19.6 +59.4	84.4	11 19.6 +59.4	84.4	11 19.6 +59.4	84.4	12				
13	11 31.1 +57.9	82.7	11 38.6 +58.2	82.9	11 45.9 +58.4	83.1	11 52.9 +58.7	83.4	11 59.8 +58.8	83.6	12 06.4 +59.0	83.8	12 12.8 +59.2	84.0	12 19.0 +59.3	84.2	12 19.0 +59.3	84.2	12 19.0 +59.3	84.2	12 19.0 +59.3	84.2	13				
14	12 29.0 +57.9	82.5	12 36.8 +58.1	82.7	12 44.3 +58.4	82.9	12 51.6 +58.6	83.1	12 58.6 +58.9	83.4	13 05.4 +59.1	83.6	13 12.0 +59.2	83.8	13 18.3 +59.4	84.1	13 18.3 +59.4	84.1	13 18.3 +59.4	84.1	13 18.3 +59.4	84.1	14				
15	13 26.9 +57.8	82.2	13 34.9 +58.1	82.4	13 42.7 +58.3	82.7	13 50.2 +58.6	82.9	13 57.5 +58.8	83.2	14 04.5 +59.0	83.4	14 11.2 +59.3	83.7	14 17.7 +59.4	83.9	14 17.7 +59.4	83.9	14 17.7 +59.4	83.9	14 17.7 +59.4	83.9	15				
16	14 24.7 +57.8	81.9	14 33.0 +58.1	82.2	14 41.0 +58.4	82.4	14 48.8 +58.6	82.7	14 56.3 +58.8	83.0	15 03.5 +59.0	83.2	15 10.5 +59.2	83.5	15 17.1 +59.4	83.8	15 17.1 +59.4	83.8	15 17.1 +59.4	83.8	15 17.1 +59.4	83.8	16				
17	15 22.5 +57.8	81.6	15 31.1 +58.1	81.9	15 39.4 +58.3	82.2	15 47.4 +58.6	82.5	15 55.1 +58.8	82.8	16 02.5 +59.0	83.0	16 09.7 +59.2	83.3	16 16.5 +59.3	83.6	16 16.5 +59.3	83.6	16 16.5 +59.3	83.6	16 16.5 +59.3	83.6	17				
18	16 20.3 +57.8	81.4	16 29.2 +58.0	81.7	16 37.7 +58.4	82.0	16 46.0 +58.6	82.2	16 53.9 +58.8	82.5	17 01.5 +59.0	82.9	17 08.9 +59.1	83.2	17 15.8 +59.4	83.5	17 15.8 +59.4	83.5	17 15.8 +59.4	83.5	17 15.8 +59.4	83.5	18				
19	17 18.1 +57.8	81.1	17 27.2 +58.1	81.4	17 36.1 +58.3	81.7	17 44.6 +58.5	82.0	17 52.7 +58.8	82.3	18 00.5 +59.0	82.7	18 08.0 +59.2	83.0	18 15.2 +59.4	83.3	18 15.2 +59.4	83.3	18 15.2 +59.4	83.3	18 15.2 +59.4	83.3	19				
20	18 15.9 +57.7	80.8	18 25.3 +58.0	81.1	18 34.4 +58.3	81.5	18 43.1 +58.5	81.8	18 51.5 +58.8	82.1	18 59.5 +59.0	82.5	19 07.2 +59.2	82.8	19 14.6 +59.3	83.2	19 14.6 +59.3	83.2	19 14.6 +59.3	83.2	19 14.6 +59.3	83.2	20				
21	19 13.6 +57.7	80.5	19 23.3 +58.0	80.9	19 32.7 +58.2	81.2	19 41.6 +58.6	81.6	19 50.3 +58.7	81.9	19 58.5 +59.0	82.3	20 06.4 +59.2	82.6	20 13.9 +59.3	83.0	20 13.9 +59.3	83.0	20 13.9 +59.3	83.0	20 13.9 +59.3	83.0	21				
22	20 11.3 +57.7	80.2	20 21.3 +58.0	80.6	20 30.9 +58.3	81.0	20 40.2 +58.5	81.3	20 49.0 +58.7	81.7	20 57.5 +58.9	82.1	21 05.6 +59.1	82.5	21 13.2 +59.4	82.8	21 13.2 +59.4	82.8	21 13.2 +59.4	82.8	21 13.2 +59.4	82.8	22				
23	21 09.0 +57.6	79.9	21 19.3 +57.9	80.3	21 29.2 +58.2	80.7	21 38.7 +58.4	81.1	21 47.7 +58.8	81.5	21 56.4 +59.0	81.9	22 04.7 +59.1	82.3	22 12.6 +59.3	82.7	22 12.6 +59.3	82.7	22 12.6 +59.3	82.7	22 12.6 +59.3	82.7	23				
24	22 06.6 +57.6	79.6	22 17.2 +57.9	80.0	22 27.4 +58.2	80.4	22 37.1 +58.5	80.8	22 46.5 +58.7	81.3	22 55.4 +58.9	81.7	23 03.8 +59.2	82.1	23 11.9 +59.3	82.5	23 11.9 +59.3	82.5	23 11.9 +59.3	82.5	23 11.9 +59.3	82.5	24				
25	23 04.2 +57.6	79.3	23 15.1 +57.9	79.7	23 25.6 +58.1	80.2	23 35.6 +58.4	80.6	23 45.2 +58.6	81.0	23 54.3 +58.9	81.5	24 03.0 +59.1	81.9	24 11.2 +59.3	82.4	24 11.2 +59.3	82.4	24 11.2 +59.3	82.4	24 11.2 +59.3	82.4	25				
26	24 01.8 +57.5	79.0	24 13.0 +57.8	79.5	24 23.7 +58.2	79.9	24 34.0 +58.4	80.3	24 43.8 +58.7	80.8	24 53.2 +58.9	81.3	25 02.1 +59.1	81.7	25 10.5 +59.3	82.2	25 10.5 +59.3	82.2	25 10.5 +59.3	82.2	25 10.5 +59.3	82.2	26				
27	24 59.3 +57.5	78.7	25 10.8 +57.8	79.2	25 21.9 +58.1	79.4	25 32.3 +58.4	80.4	25 42.5 +58.6	80.6	25 52.1 +58.9	81.0	26 01.2 +59.1	81.5	26 09.8 +59.2	82.0	26 09.8 +59.2	82.0	26 09.8 +59.2	82.0	26 09.8 +59.2	82.0	27				
28	25 56.8 +57.4	78.4	26 08.6 +57.8	78.9	26 20.0 +58.0	79.4	26 30.8 +58.4	79.8	26 41.1 +58.6	80.3	26 51.0 +58.8	80.8	27 09.3 +59.0	81.3	27 09.0 +59.3	81.7	27 09.0 +59.3	81.7	27 09.0 +59.3	81.7	27 09.0 +59.3	81.7	28				
29	26 54.2 +57.5	78.1	26 07.4 +57.7	78.6	26 17.8 +58.1	79.1	26 28.2 +58.5	79.6	26 38.7 +58.8	80.1	26 49.2 +59.1	80.5	27 32.4 +59.4	80.9	27 43.7 +59.7	81.4	27 54.4 +59.9	80.1	27 54.4 +59.9	80.1	27 54.4 +59.9	80.1	27 54.4 +59.9	80.1	29		
30	27 51.7 +57.3	77.7	28 04.1 +57.7	78.3	28 16.1 +58.0	78.8	28 27.5 +58.3	79.3	28 38.3 +58.6	79.8	28 48.6 +58.8	80.4	28 58.4 +59.0	80.9	29 07.5 +59.3	81.5	29 07.5 +59.3	81.5	29 07.5 +59.3	81.5	29 07.5 +59.3	81.5	30				
31	28 49.0 +57.3	77.4	29 01.8 +57.7	77.9	29 14.1 +57.9	78.5	29 25.8 +58.2	79.0	29 36.9 +58.5	79.6	29 47.4 +58.8	80.2	29 57.4 +59.0	80.7	30 06.8 +59.2	81.3	30 06.8 +59.2										

87°, 273° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	0 46.6 +57.9	92.9	0 43.5 +58.2	92.9	0 40.5 +58.4	92.9	0 37.4 +58.7	92.9	0 34.3 +58.9	92.9	0 31.2 +59.1	93.0	0 28.1 +59.3	93.0	0 25.0 +59.5	93.0	0 22.1 +59.4	92.3	5 22.1 +59.4	92.3	5	0			
1	1 44.5 +58.0	92.6	1 41.7 +58.3	92.7	1 38.9 +58.5	92.7	1 36.1 +58.7	92.7	1 33.2 +58.9	92.8	1 30.3 +59.1	92.8	1 27.4 +59.3	92.8	1 24.5 +59.4	92.8	1	1							
2	2 42.5 +57.9	92.4	2 40.0 +58.2	92.4	2 37.4 +58.5	92.5	2 34.8 +58.7	92.5	2 32.1 +58.9	92.6	2 29.4 +59.1	92.6	2 26.7 +59.2	92.7	2 23.9 +59.4	92.7	2	2							
3	3 40.4 +58.0	92.1	3 38.2 +58.2	92.2	3 35.9 +58.4	92.2	3 33.5 +58.7	92.3	3 31.0 +58.9	92.4	3 28.5 +59.1	92.4	3 25.9 +59.3	92.5	3 23.3 +59.4	92.6	3	3							
4	4 38.4 +57.9	91.9	4 36.4 +58.2	91.9	4 34.3 +58.5	92.0	4 32.2 +58.6	92.1	4 29.9 +58.9	92.2	4 27.6 +59.1	92.3	4 25.2 +59.3	92.3	4 22.7 +59.4	92.4	4	4							
5	5 36.3 +58.0	91.6	5 34.6 +58.2	91.7	5 32.8 +58.4	91.8	5 30.8 +58.7	91.9	5 28.8 +58.9	92.0	5 26.7 +59.1	92.1	5 24.5 +59.2	92.2	5 22.1 +59.4	92.3	5	5							
6	6 34.3 +57.9	91.3	6 32.8 +58.2	91.5	6 31.2 +58.5	91.6	6 29.5 +58.7	91.7	6 27.7 +58.9	91.8	6 25.8 +59.0	91.9	6 23.7 +59.3	92.0	6 21.5 +59.4	92.1	6	6							
7	7 32.2 +57.9	91.1	7 31.0 +58.2	91.2	7 29.7 +58.4	91.3	7 28.2 +58.7	91.5	7 26.6 +58.9	91.6	7 24.8 +59.1	91.7	7 23.0 +59.2	91.9	7 20.9 +59.4	92.0	7	7							
8	8 30.1 +57.9	90.8	8 29.2 +58.2	91.0	8 28.1 +58.4	91.1	8 26.9 +58.6	91.3	8 25.5 +58.8	91.4	8 23.9 +59.1	91.6	8 22.2 +59.3	91.7	8 20.3 +59.4	91.9	8	8							
9	9 28.0 +57.9	90.5	9 27.4 +58.1	90.7	9 26.5 +58.5	90.9	9 25.5 +58.7	91.0	9 24.3 +58.9	91.2	9 23.0 +59.0	91.4	9 21.5 +59.2	91.5	9 19.7 +59.5	91.7	9	9							
10	10 25.9 +57.9	90.3	10 25.5 +58.2	90.5	10 25.0 +58.4	90.7	10 24.2 +58.6	90.8	10 23.2 +58.9	91.0	10 22.0 +59.1	91.2	10 20.7 +59.2	91.4	10 19.2 +59.3	91.6	10	10							
11	11 23.8 +57.9	90.0	11 23.7 +58.1	90.2	11 23.4 +58.4	90.4	11 22.8 +58.7	90.6	11 22.1 +58.8	90.8	11 21.1 +59.1	91.0	11 19.9 +59.3	91.2	11 18.5 +59.4	91.4	11	11							
12	12 21.7 +57.8	89.7	12 21.8 +58.2	90.0	12 21.8 +58.3	90.2	12 21.5 +58.6	90.4	12 20.9 +58.9	90.6	12 20.2 +59.0	90.8	12 19.2 +59.2	91.1	12 17.9 +59.4	91.3	12	12							
13	13 19.5 +57.9	89.5	13 20.0 +58.1	89.7	13 20.1 +58.4	89.9	13 20.1 +58.6	90.2	13 19.8 +58.8	90.4	13 19.2 +59.0	90.7	13 18.4 +59.2	90.9	13 17.3 +59.4	91.1	13	13							
14	14 17.4 +57.8	89.2	14 18.1 +58.1	89.5	14 18.5 +58.4	89.7	14 18.7 +58.6	90.0	14 18.6 +58.8	90.2	14 18.2 +59.1	90.5	14 17.6 +59.2	90.7	14 16.7 +59.4	91.0	14	14							
15	15 15.2 +57.8	88.9	15 16.2 +58.1	89.2	15 16.9 +58.3	89.5	15 17.3 +58.6	89.7	15 17.4 +58.8	90.0	15 17.3 +59.0	90.3	15 16.8 +59.2	90.6	15 16.1 +59.4	90.8	15	15							
16	16 13.0 +57.8	88.6	16 14.3 +58.0	88.9	16 15.2 +58.3	89.2	16 15.9 +58.5	89.5	16 16.2 +58.8	89.8	16 16.3 +59.0	90.1	16 16.0 +59.2	90.4	16 15.5 +59.3	90.7	16	16							
17	17 10.8 +57.7	88.4	17 12.3 +58.1	88.7	17 13.5 +58.4	89.0	17 14.4 +58.6	89.3	17 15.0 +58.8	89.6	17 15.3 +59.0	89.9	17 15.2 +59.2	90.2	17 14.8 +59.4	90.5	17	17							
18	18 08.5 +57.7	88.1	18 10.4 +58.0	88.4	18 11.9 +58.2	88.7	18 13.0 +58.5	89.1	18 13.8 +58.8	89.4	18 14.3 +59.0	89.7	18 14.4 +59.2	90.0	18 14.2 +59.3	90.4	18	18							
19	19 06.2 +57.7	87.8	19 08.4 +58.0	88.1	19 10.1 +58.3	88.5	19 11.5 +58.6	88.8	19 12.6 +58.7	89.2	19 13.3 +58.9	89.5	19 13.6 +59.1	89.9	19 13.5 +59.4	90.2	19	19							
20	20 03.9 +57.7	87.5	20 06.4 +57.9	87.9	20 08.4 +58.3	88.2	20 10.1 +58.5	88.6	20 11.3 +58.8	89.0	20 12.2 +59.0	89.3	20 12.7 +59.2	89.7	20 12.9 +59.3	90.1	20	20							
21	21 01.6 +57.6	87.2	21 04.3 +58.0	87.6	21 06.7 +58.2	88.0	21 08.6 +58.5	88.4	21 10.1 +58.7	88.7	21 11.2 +58.9	89.1	21 11.9 +59.2	89.5	21 12.2 +59.3	89.9	21	21							
22	21 59.2 +57.6	86.9	22 02.3 +57.9	87.3	22 04.9 +58.2	87.7	22 07.1 +58.4	88.1	22 08.8 +58.7	88.5	22 10.1 +59.0	88.9	22 11.1 +59.1	89.3	22 11.5 +59.3	89.7	22	22							
23	22 56.8 +57.6	86.6	23 00.2 +57.9	87.0	23 03.1 +58.1	87.4	23 05.5 +58.5	87.9	23 07.5 +58.7	88.3	23 09.1 +58.9	88.7	23 10.2 +59.1	89.2	23 10.8 +59.4	89.6	23	23							
24	23 54.4 +57.5	86.3	23 58.1 +57.8	86.7	24 01.2 +58.2	87.2	24 04.0 +58.4	87.6	24 06.2 +58.7	88.1	24 08.0 +58.9	88.5	24 09.3 +59.1	89.0	24 10.2 +59.2	89.4	24	24							
25	24 51.9 +57.5	86.0	24 55.9 +57.8	86.4	24 59.4 +58.1	86.9	25 02.4 +58.4	87.4	25 04.9 +58.6	87.8	25 06.9 +58.9	88.3	25 08.4 +59.1	88.8	25 09.4 +59.3	89.3	25	25							
26	25 49.4 +57.5	85.7	25 53.7 +57.8	86.1	25 57.5 +58.1	86.6	26 00.8 +58.3	87.1	26 03.5 +58.6	87.6	26 05.8 +58.9	88.1	26 07.5 +59.1	88.6	26 08.7 +59.3	89.1	26	26							
27	26 46.9 +57.4	85.3	26 51.5 +57.7	85.8	26 55.6 +58.0	86.4	26 59.1 +58.4	86.9	27 02.1 +58.6	87.4	27 04.6 +58.9	87.9	27 06.6 +59.0	88.4	27 08.0 +59.3	88.9	27	27							
28	27 44.3 +57.4	85.0	27 49.2 +57.7	85.5	27 53.6 +58.0	86.1	27 57.5 +58.3	86.6	28 00.7 +58.6	87.1	28 03.5 +58.8	87.7	28 05.6 +59.1	88.2	28 07.3 +59.2	88.7	28	28							
29	28 41.7 +57.3	84.7	28 46.9 +57.7	85.2	28 51.6 +58.0	85.8	28 55.8 +58.2	86.3	28 59.3 +58.6	86.9	29 02.3 +58.8	87.4	29 04.7 +59.0	88.0	29 06.5 +59.2	88.5	29	29							
30	29 39.0 +57.2	84.3	29 44.6 +57.6	84.9	29 49.6 +57.9	85.5	29 54.0 +58.3	86.1	29 57.9 +58.5	86.6	30 01.1 +58.8	87.2	30 03.7 +59.0	87.8	30 05.7 +59.2	88.4	30	30							
31	30 36.2 +57.2	84.0	30 42.2 +57.6	84.6	30 47.5 +57.9	85.2	30 52.3 +58.2	85.8	30 56.4 +58.5	86.4	30 59.9 +58.7	87.0	31 02.7 +59.0	87.6	31 04.9 +59.2	88.2	31	31							
32	31 33.4 +57.2	83.6	31 39.8 +57.5	84.3	31 45.4 +57.9	84.9	31 50.5 +58.1	85.5	31 54.9 +58.4	86.1	31 58.6 +58.7	86.7	32 01.7 +59.0	87.4	32 04.1 +59.2	88.0	32	32							
33	32 30.6 +57.1	83.3	32 37.3 +57.4	83.9	32 43.3 +57.8	84.6	32 48.6 +58.2	85.2	32 53.3 +58.4	85.8	32 57.3 +58.7	86.5	33 00.7 +58.9	87.1	33 03.3 +59.2	87.8	33	33							
34	33 27.7 +57.0	82.9	33 34.7 +57.4	83.6	33 41.1 +57.7	84.2	33 46.8 +58.0	84.9	33 51.7 +58.4	85.6	33 56.0 +58.7	86.2	33 59.6 +58.9	86.9	34 02.5 +59.1	87.6	34	34							
35	34 24.7 +56.9	82.5	34 32.1 +57.3	83.2	34 38.8 +57.7	83.9	34 44.8 +58.1	84.6	34 50.1 +58.4	85.3	34 54.7 +58.6	86.0	34 58.5 +58.9	86.7	35 01.6 +59.1	87.4	35	35							
36	35 21.6 +56.9	82.2	35 29.4 +57.3	82.9	35 36.5 +57.7	83.6	35 42.9 +57.9	84.3	35 48.5 +58.3	85.0	35 53.3 +58.6	85.7	35 57.4 +58.9	86.4	36 00.7 +59.1	87.2	36	36							
37	36 18.5 +56.8	81.8	36 26.7 +57.2	82.5	36 34.2 +57.5	83.2	36 40.8 +58.0	84.0	36 46.8 +58.2	84.7	36 51.9 +58.5	85.5	36 56.3 +58.8	86.2	36 59.8 +59.1	87.0	37	37							
38	37 15.3 +56.7	81.4	37 23.9 +57.1	82.1	37 31.7 +57.5	82.9	37 38.8 +57.8	83.6	37 45.0 +58.2	84.4	37 50.4 +58.6	85.2	37 55.1 +58.8	86.0	37 58.9 +59.0	86.7	38	38							
39	38 12.0 +56.6	81.0	38 21.0 +57.1	81.7	38 29.2 +57.5	82.5	38 36.6 +57.9	83.3	38 43.2 +58.2	84.1	38 49.0 +58.4	84.9	38 53.9 +58.7	85.7	38 57.9 +59.1	86.5	39	39							
40	39 08.6 +56.5	80.5	39 18.1 +56.9	81.3	39 26.7 +57.3	82.1	39 34.5 +57.7	83.0	39 41.4 +58.1	83.8	39 47.4 +58.5	84.6	39 52.6 +58.8	85.4	39 57.0 +59.0	86.3	40	40							
41	40 05.1 +56.4	80.1	40 15.0 +56.9	80.9	40 24.0 +57.3	81.8	40 32.2 +57.7	82.6	40 39.5 +58.0	83.5	40 45.9 +58.3	84.3	40 51.0 +58.6	85.2	40 56.0 +58.9	86.0</td									

LATITUDE CONTRARY NAME TO DECLINATION **L.H.A. 87°, 273°**

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.								
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z									
0	0	46.6	-58.0	92.9	0	43.5	-58.2	92.9	0	40.5	-58.5	92.9	0	37.4	-58.7	92.9	0	34.3	-58.9	92.9	0	31.2	-59.0	93.0	0	28.1	-59.2	93.0	0	25.0	-59.4	93.0	0
1	0	11.4	+58.0	86.8	0	14.7	+58.2	86.8	0	18.0	+58.5	86.9	0	21.3	+58.7	86.9	0	24.6	+58.9	86.9	0	27.8	+59.1	86.9	0	31.1	+59.3	86.9	0	34.4	+59.4	86.9	1
2	1	09.4	+57.9	86.6	1	12.9	+58.2	86.6	1	16.5	+58.4	86.6	1	20.0	+58.7	86.7	1	23.5	+58.9	86.7	1	26.9	+59.1	86.7	1	30.4	+59.2	86.7	1	33.8	+59.4	86.8	2
3	2	07.3	+58.0	86.3	2	11.1	+58.3	86.4	2	14.9	+58.5	86.4	2	18.7	+58.7	86.4	2	22.4	+58.9	86.5	2	26.0	+59.1	86.5	2	29.6	+59.3	86.6	2	33.2	+59.4	86.6	3
4	3	05.3	+57.9	86.1	3	09.4	+58.2	86.1	3	13.4	+58.4	86.2	3	17.4	+58.6	86.2	3	21.3	+58.9	86.3	3	25.1	+59.1	86.4	3	28.9	+59.3	86.4	3	32.6	+59.4	86.5	4
5	4	03.2	+58.0	85.8	4	07.6	+58.2	85.9	4	11.8	+58.5	86.0	4	16.0	+58.7	86.0	4	20.2	+58.9	86.1	4	24.2	+59.1	86.2	4	28.2	+59.2	86.3	4	32.0	+59.5	86.3	5
6	5	01.2	+57.9	85.5	5	05.8	+58.2	85.6	5	10.3	+58.5	85.7	5	14.7	+58.7	85.8	5	19.1	+58.8	85.9	5	23.3	+59.1	86.0	5	27.4	+59.3	86.1	5	31.5	+59.4	86.2	6
7	5	59.1	+57.9	85.3	6	04.0	+58.2	85.4	6	08.8	+58.4	85.5	6	13.4	+58.7	85.6	6	17.9	+58.9	85.7	6	22.4	+59.0	85.8	6	26.7	+59.2	85.9	6	30.9	+59.4	86.1	7
8	6	57.0	+58.0	85.0	7	02.2	+58.2	85.1	7	07.2	+58.4	85.3	7	12.1	+58.6	85.4	7	16.8	+58.9	85.5	7	21.4	+59.1	85.7	7	25.9	+59.3	85.8	7	30.3	+59.4	85.9	8
9	7	55.0	+57.9	84.8	8	00.4	+58.2	84.9	8	05.6	+58.5	85.0	8	10.7	+58.7	85.2	8	15.7	+58.9	85.3	8	20.5	+59.1	85.5	8	25.2	+59.2	85.6	8	29.7	+59.4	85.8	9
10	8	52.9	+57.9	84.5	8	58.6	+58.1	84.7	9	04.1	+58.4	84.8	9	09.4	+58.7	85.0	9	14.6	+58.9	85.1	9	19.6	+59.1	85.3	9	24.4	+59.3	85.5	9	29.1	+59.4	85.6	10
11	9	50.8	+57.9	84.2	9	56.7	+58.2	84.4	10	02.5	+58.4	84.6	10	08.1	+58.6	84.8	10	13.5	+58.8	84.9	10	18.7	+59.0	85.1	10	23.7	+59.2	85.3	10	28.5	+59.4	85.5	11
12	10	48.7	+57.9	84.0	10	54.9	+58.1	84.2	11	00.9	+58.4	84.3	11	06.7	+58.6	84.5	11	12.3	+58.9	84.7	11	17.7	+59.1	84.9	11	22.9	+59.2	85.1	11	27.9	+59.4	85.3	12
13	11	46.6	+57.8	83.7	11	53.0	+58.2	83.9	11	59.3	+58.4	84.1	12	05.3	+58.7	84.3	12	11.2	+58.8	84.5	12	16.8	+59.0	84.8	12	22.1	+59.3	85.0	12	27.3	+59.4	85.2	13
14	12	44.4	+57.9	83.4	12	51.2	+58.1	83.7	12	57.7	+58.4	83.9	13	04.0	+58.6	84.1	13	10.0	+58.8	84.3	13	15.8	+59.0	84.6	13	21.4	+59.2	84.8	13	26.7	+59.3	85.0	14
15	13	42.3	+57.8	83.2	13	49.3	+58.1	83.4	13	56.1	+58.3	83.6	14	02.6	+58.6	83.9	14	08.8	+58.9	84.1	14	14.8	+59.1	84.4	14	20.6	+59.2	84.6	14	26.0	+59.4	84.9	15
16	14	40.1	+57.8	82.9	14	47.4	+58.1	83.1	14	54.4	+58.4	83.4	15	01.2	+58.6	83.7	15	07.7	+58.8	83.9	15	13.9	+59.0	84.2	15	19.8	+59.2	84.5	15	25.4	+59.4	84.8	16
17	15	37.9	+57.8	82.6	15	45.5	+58.1	82.9	15	52.8	+58.3	83.2	15	59.8	+58.6	83.4	16	06.5	+58.8	83.7	16	12.9	+59.0	84.0	16	19.0	+59.2	84.3	16	24.8	+59.3	84.6	17
18	16	35.7	+57.8	82.3	16	43.6	+58.0	82.6	16	51.1	+58.3	82.9	16	58.4	+58.5	83.2	17	05.3	+58.8	83.5	17	11.9	+59.0	83.8	17	18.2	+59.2	84.1	17	24.1	+59.4	84.4	18
19	17	33.5	+57.7	82.0	17	41.6	+58.0	82.4	17	49.4	+58.3	82.7	17	56.9	+58.6	83.0	18	04.1	+58.8	83.3	18	10.9	+59.0	83.6	18	17.4	+59.1	84.0	18	23.5	+59.4	84.3	19
20	18	31.2	+57.7	81.8	18	39.6	+58.0	82.1	18	47.7	+58.3	82.4	18	55.5	+58.5	82.8	19	02.9	+58.7	83.1	19	09.9	+59.0	83.4	19	16.5	+59.2	83.8	19	22.9	+59.3	84.1	20
21	19	28.9	+57.7	81.5	19	37.6	+58.0	81.8	19	46.0	+58.3	82.2	19	54.0	+58.5	82.5	20	01.6	+58.8	82.9	20	08.9	+58.9	83.2	20	15.7	+59.2	83.6	20	22.2	+59.3	84.0	21
22	20	26.6	+57.7	81.2	20	35.6	+58.0	81.5	20	44.3	+58.2	81.9	20	52.5	+58.5	82.3	21	00.4	+58.7	82.7	21	07.8	+59.0	83.1	21	14.9	+59.1	83.4	21	21.5	+59.4	83.8	22
23	21	24.3	+57.6	80.9	21	33.6	+57.9	81.3	21	42.5	+58.2	81.7	21	51.0	+58.5	82.1	21	59.1	+58.7	82.4	22	06.8	+58.9	82.9	22	14.0	+59.2	83.3	22	20.9	+59.3	83.7	23
24	22	21.9	+57.6	80.6	22	31.5	+57.9	81.0	22	40.7	+58.2	81.4	22	49.5	+58.4	81.8	22	57.8	+58.7	82.2	23	05.7	+58.9	82.6	23	13.2	+59.1	83.1	23	20.2	+59.3	83.5	24
25	23	19.5	+57.5	80.3	23	29.4	+57.9	80.7	23	38.9	+58.1	81.1	23	47.9	+58.4	81.6	23	56.5	+58.7	82.0	24	04.6	+58.9	82.4	24	12.3	+59.1	82.9	24	19.5	+59.3	83.3	25
26	24	17.0	+57.6	80.0	24	27.3	+57.8	80.4	24	37.0	+58.2	80.9	24	46.3	+58.4	81.3	24	55.2	+58.6	81.8	25	03.5	+58.9	82.2	25	11.4	+59.1	82.7	25	18.8	+59.2	83.2	26
27	25	14.6	+57.4	79.6	25	25.1	+57.8	80.1	25	35.2	+58.1	80.6	25	44.7	+58.4	81.1	25	53.8	+58.6	81.5	26	02.4	+58.9	82.5	26	18.0	+59.3	83.0	27				
28	26	12.0	+57.5	79.3	26	22.9	+57.8	79.8	26	33.3	+58.0	80.3	26	43.1	+58.3	80.8	26	52.4	+58.6	81.3	27	09.5	+59.1	82.3	27	17.3	+59.3	82.8	28				
29	27	09.5	+57.4	79.0	27	20.7	+57.7	79.5	27	31.3	+58.0	80.0	27	41.4	+58.4	80.5	27	51.0	+58.6	81.1	28	00.1	+58.8	81.6	28	08.6	+59.0	82.1	28				
30	28	06.9	+57.3	78.7	28	18.4	+57.6	79.2	28	29.3	+58.0	79.7	28	39.8	+58.2	80.3	28	49.6	+58.6	80.8	28	58.9	+58.8	81.4	29	15.8	+59.2	82.5	30				
31	29	04.2	+57.3	78.3	29	16.0	+57.7	78.9	29	27.3	+58.0	79.4	29	38.0	+58.3	80.0	29	48.2	+58.5	80.6	29	57.7	+58.8	81.1	30	15.0	+59.2	82.3	31				
32	30	01.5	+57.2	78.0	30	13.7	+57.6	78.6	30	25.3	+57.9	79.1	30	36.3	+58.2	79.7	30	46.7	+58.5	80.3	30	56.5	+58.7	80.9	31	05.7	+59.0	81.5	32				
33	30	58.7	+57.2	77.7	31	11.3	+57.5	78.2	31	23.2	+57.8	78.8	31	34.5	+58.2	79.4	31	45.2	+58.4	80.0	31	55.2	+58.8	80.7	32	04.7	+58.9	81.3	33				
34	31	55.9	+57.1	77.3	32	08.8	+57.5	77.9	32	20.7	+57.9	81.7	32	31.8	+58.1	79.1	32	43.6	+58.5	80.4	33	03.6	+59.0	81.1	33	12.6	+59.2	81.7	34</td				

88°, 272° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	0 31.1 +57.9	91.9	0 29.0 +58.2	91.9	0 27.0 +58.5	91.9	0 24.9 +58.7	92.0	0 22.9 +58.9	92.0	0 20.8 +59.1	92.0	0 18.8 +59.2	92.0	0 16.7 +59.4	92.0	0 14.6 +59.4	92.0	0 12.5 +59.4	91.9	0 10.4 +59.4	91.9	0 8.3 +59.4	91.9	0
1	1 29.0 +58.0	91.7	1 27.2 +58.3	91.7	1 25.5 +58.4	91.7	1 23.6 +58.7	91.7	1 21.8 +58.9	91.8	1 19.9 +59.1	91.8	1 18.0 +59.3	91.8	1 16.1 +59.4	91.8	1 14.2 +59.4	91.8	1 12.3 +59.4	91.7	1 10.4 +59.4	91.7	1 8.5 +59.4	91.7	1
2	2 27.0 +57.9	91.4	2 25.5 +58.2	91.5	2 23.9 +58.5	91.5	2 22.3 +58.7	91.5	2 20.7 +58.9	91.6	2 19.0 +59.1	91.6	2 17.3 +59.3	91.7	2 15.5 +59.4	91.7	2 13.6 +59.4	91.7	2 11.8 +59.4	91.6	2 10.0 +59.4	91.6	2 8.2 +59.4	91.6	2
3	3 24.9 +58.0	91.2	3 23.7 +58.2	91.2	3 22.4 +58.4	91.3	3 21.0 +58.7	91.3	3 19.6 +58.9	91.4	3 18.1 +59.1	91.4	3 16.6 +59.2	91.5	3 14.9 +59.5	91.6	3 13.2 +59.6	91.6	3 11.5 +59.6	91.6	3 9.8 +59.6	91.6	3 8.1 +59.6	91.6	3
4	4 22.9 +57.9	90.9	4 21.9 +58.2	91.0	4 20.8 +58.5	91.0	4 19.7 +58.7	91.1	4 18.5 +58.9	91.2	4 17.2 +59.1	91.3	4 15.8 +59.3	91.3	4 14.4 +59.4	91.4	4 13.0 +59.4	91.4	4 11.6 +59.4	91.4	4 10.2 +59.4	91.4	4 8.8 +59.4	91.4	4
5	5 20.8 +57.9	90.6	5 20.1 +58.2	90.7	5 19.3 +58.4	90.8	5 18.4 +58.7	90.9	5 17.4 +58.9	91.0	5 16.3 +59.0	91.1	5 15.1 +59.2	91.2	5 13.8 +59.4	91.3	5 12.5 +59.4	91.3	5 11.2 +59.4	91.3	5 9.9 +59.4	91.3	5 8.6 +59.4	91.3	5
6	6 18.7 +58.0	90.4	6 18.3 +58.2	90.5	6 17.7 +58.5	90.6	6 17.1 +58.6	90.7	6 16.3 +58.8	90.8	6 15.3 +59.1	90.9	6 14.3 +59.3	91.0	6 13.2 +59.4	91.1	6 12.1 +59.4	91.1	6 11.0 +59.4	91.1	6 9.9 +59.4	91.1	6 8.7 +59.4	91.1	6
7	7 16.7 +57.9	90.1	7 16.5 +58.2	90.2	7 16.2 +58.4	90.4	7 15.7 +58.7	90.5	7 15.1 +58.9	90.6	7 14.4 +59.1	90.7	7 13.6 +59.2	90.9	7 12.6 +59.4	91.0	7 11.5 +59.4	91.0	7 10.5 +59.4	91.0	7 9.5 +59.4	91.0	7 8.5 +59.4	91.0	7
8	8 14.6 +57.9	89.8	8 14.7 +58.2	90.0	8 14.6 +58.4	90.1	8 14.4 +58.6	90.3	8 14.0 +58.9	90.4	8 13.5 +59.1	90.6	8 12.8 +59.3	90.7	8 12.0 +59.4	90.9	8 11.2 +59.4	90.9	8 10.4 +59.4	90.9	8 9.6 +59.4	90.9	8 8.8 +59.4	90.9	8
9	9 12.5 +57.9	89.6	9 12.9 +58.1	89.7	9 13.0 +58.3	89.9	9 13.0 +58.7	90.1	9 12.9 +58.9	90.2	9 12.6 +59.0	90.4	9 12.1 +59.2	90.6	9 11.4 +59.4	90.7	9 10.7 +59.4	90.7	9 9.9 +59.4	90.7	9 9.1 +59.4	90.7	9 8.3 +59.4	90.7	9
10	10 10.4 +57.9	89.3	10 11.0 +58.2	89.5	10 11.5 +58.4	89.7	10 11.7 +58.6	89.9	10 11.8 +58.8	90.0	10 11.6 +59.1	90.2	10 11.3 +59.2	90.4	10 10.8 +59.4	90.6	10 10.2 +59.4	90.6	10 9.6 +59.4	90.6	10 9.0 +59.4	90.6	10 8.4 +59.4	90.6	10
11	11 08.3 +57.9	89.0	11 09.2 +58.1	89.2	11 09.9 +58.4	89.4	11 10.3 +58.7	89.6	11 10.6 +58.9	89.8	11 10.7 +59.0	90.0	11 10.5 +59.3	90.2	11 10.2 +59.4	90.4	11 9.9 +59.4	90.4	11 9.5 +59.4	90.4	11 9.1 +59.4	90.4	11 8.7 +59.4	90.4	11
12	12 06.2 +57.8	88.8	12 07.3 +58.2	89.0	12 08.3 +58.3	89.2	12 09.0 +58.6	89.4	12 09.5 +58.8	89.6	12 09.7 +59.1	89.9	12 09.8 +59.2	90.1	12 09.6 +59.4	90.3	12 09.4 +59.4	90.3	12 09.2 +59.4	90.3	12 09.0 +59.4	90.3	12 08.8 +59.4	90.3	12
13	13 04.0 +57.8	88.5	13 05.5 +58.1	88.7	13 06.6 +58.4	89.0	13 07.6 +58.6	89.2	13 08.3 +58.8	89.4	13 08.8 +59.0	89.7	13 09.0 +59.2	89.9	13 09.0 +59.4	90.1	13 08.8 +59.4	90.1	13 08.6 +59.4	90.1	13 08.4 +59.4	90.1	13 08.2 +59.4	90.1	13
14	14 01.8 +57.9	88.2	14 03.6 +58.1	88.5	14 05.0 +58.4	88.7	14 06.2 +58.6	89.0	14 07.1 +58.9	89.2	14 07.8 +59.0	89.5	14 08.2 +59.2	89.7	14 08.4 +59.3	90.0	14 08.2 +59.3	90.0	14 08.0 +59.3	90.0	14 07.8 +59.3	90.0	14 07.6 +59.3	90.0	14
15	15 49.7 +57.8	88.0	15 01.7 +58.0	88.2	15 03.4 +58.3	88.5	15 04.8 +58.6	88.8	15 06.0 +58.8	89.0	15 06.8 +59.1	89.3	15 07.4 +59.2	89.6	15 07.7 +59.4	89.8	15 07.7 +59.4	89.8	15 07.5 +59.4	89.8	15 07.3 +59.4	89.8	15 07.1 +59.4	89.8	15
16	15 57.5 +57.7	87.7	15 59.7 +58.1	88.0	16 01.7 +58.4	88.3	16 03.4 +58.6	88.5	16 04.8 +58.8	88.8	16 05.9 +59.0	89.1	16 06.6 +59.2	89.4	16 07.1 +59.4	89.7	16 07.5 +59.4	89.7	16 07.9 +59.4	89.7	16 08.3 +59.4	89.7	16 08.7 +59.4	89.7	16
17	16 55.2 +57.8	87.4	16 57.8 +58.0	87.7	17 00.1 +58.3	88.0	17 02.0 +58.5	88.3	17 03.6 +58.8	88.6	17 04.9 +59.0	88.9	17 05.8 +59.2	89.2	17 06.5 +59.3	89.5	17 07.2 +59.4	89.7	17 07.9 +59.4	89.7	17 08.6 +59.4	89.7	17 09.3 +59.4	89.7	17
18	17 53.0 +57.7	87.1	17 55.8 +58.1	87.4	17 58.4 +58.3	87.8	18 00.5 +58.6	88.1	18 02.4 +58.7	88.4	18 03.9 +59.0	88.7	18 05.0 +59.2	89.1	18 05.8 +59.4	89.4	18 06.5 +59.4	89.4	18 07.2 +59.4	89.4	18 07.9 +59.4	89.4	18 08.6 +59.4	89.4	18
19	18 50.7 +57.7	86.8	18 53.9 +58.0	87.2	18 56.7 +58.2	87.5	18 59.1 +58.5	87.9	19 01.1 +58.8	88.2	19 02.9 +58.9	88.5	19 04.2 +59.2	88.8	19 05.4 +59.3	89.2	19 06.2 +59.3	89.2	19 07.0 +59.3	89.2	19 07.8 +59.3	89.2	19 08.6 +59.3	89.2	19
20	19 48.4 +57.7	86.5	19 51.9 +57.9	86.9	19 54.9 +58.3	87.3	19 57.6 +58.5	87.6	19 59.9 +58.7	88.0	20 01.8 +59.0	88.3	20 03.4 +59.1	88.7	20 04.5 +59.4	89.1	20 05.6 +59.4	89.1	20 06.7 +59.4	89.1	20 07.8 +59.4	89.1	20 08.9 +59.4	89.1	20
21	20 46.1 +57.6	86.2	20 49.8 +58.0	86.6	20 53.2 +58.2	87.0	20 56.1 +58.5	87.4	20 58.6 +58.8	87.8	21 00.8 +58.9	88.1	21 02.5 +59.2	88.5	21 03.9 +59.3	88.9	21 05.3 +59.3	89.3	21 07.1 +59.3	89.3	21 08.9 +59.3	89.3	21 10.7 +59.3	89.3	21
22	21 43.7 +57.7	85.9	21 47.8 +57.9	86.3	21 51.4 +58.2	86.7	21 54.6 +58.5	87.1	21 57.4 +58.7	87.5	21 59.7 +59.0	87.9	22 01.7 +59.1	88.4	22 03.2 +59.3	88.8	22 04.7 +59.3	89.2	22 06.2 +59.3	89.6	22 07.7 +59.3	89.6	22		
23	22 41.4 +57.5	85.6	22 45.7 +57.9	86.1	22 49.6 +58.2	86.5	22 53.1 +58.4	86.9	22 56.1 +58.7	87.3	22 58.7 +58.9	87.7	23 00.8 +59.1	88.2	23 02.5 +59.3	88.6	23 04.1 +59.3	88.6	23 05.8 +59.3	88.6	23 07.5 +59.3	88.6	23 09.2 +59.3	88.6	23
24	23 38.9 +57.6	85.3	23 43.6 +57.8	85.8	24 45.9 +58.1	85.9	24 49.9 +58.4	86.4	24 53.4 +58.7	86.9	24 56.5 +58.9	87.3	24 59.0 +59.1	87.8	25 01.1 +59.3	88.3	25 01.8 +59.4	88.3	25 02.5 +59.4	88.3	25 03.2 +59.4	88.3	25 04.0 +59.4	88.3	25
25	24 36.5 +57.5	85.0	24 41.4 +57.9	85.5	24 45.9 +58.1	85.9	24 49.8 +58.4	86.4	24 53.4 +58.7	86.9	24 56.5 +58.9	87.3	24 59.0 +59.1	87.8	25 01.1 +59.3	88.3	25 01.8 +59.4	88.3	25 02.5 +59.4	88.3	25 03.2 +59.4	88.3	25 04.0 +59.4	88.3	25
26	25 34.0 +57.4	84.7	25 39.2 +57.8	85.2	25 44.0 +58.1	85.7	25 48.3 +58.4	86.1	25 52.1 +58.6	86.6	25 55.4 +58.7	87.1	25 58.1 +59.1	87.6	26 00.4 +59.3	88.1	26 00.9 +59.3	88.1	26 01.4 +59.3	88.1	26 02.0 +59.3	88.1	26 02.6 +59.3	88.1	26
27	26 31.4 +57.4	84.4	26 37.0 +57.8	84.9	26 42.1 +58.0	85.4	26 46.7 +58.3	85.9	26 50.7 +58.6	86.4	26 54.7 +58.8	87.0	26 58.6 +59.1	87.6	27 00.6 +59.3	88.2	27 01.3 +59.3	88.2	27 02.0 +59.3	88.2	27 02.7 +59.3	88.2	27 03.4 +59.3	88.2	27
28	27 28.8 +57.4	84.1	27 34.8 +57.7	84.6	27 40.2 +58.0	85.1	27 45.0 +58.3	85.6	27 49.3 +58.6	86.1	27 53.1 +58.9	86.6	27 56.8 +59.2	87.1	27 60.5 +59.5	87.6	27 64.2 +59.5	88.1	27 67.9 +59.5	88.1	27 71.6 +59.5	88.1	27 75.3 +59.5	88.1	27
29	28 26.2 +57.3	83.7	28 32.5 +57.6	84.3	28 38.2 +58.0	84.8	28 43.3 +58.4	85.4	28 47.9 +58.5	85.9	28 52.4 +58.7	86.4	28 56.5 +59.0	86.9	28 60.5 +59.3	87.4	28 64.5 +59.3	87.9	28 68.5 +59.3	88.4	28 72.5 +59.3	88.4	28 76.5 +59.3		

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 88°, 272°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.								
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z									
0	0	31.1	-58.0	91.9	0	29.0	-58.2	91.9	0	27.0	-58.5	91.9	0	24.9	-58.6	92.0	0	22.9	-58.9	92.0	0	20.8	-59.1	92.0	0	18.8	-59.3	92.0	0	16.7	-59.4	92.0	0
1	0	26.9	+58.0	87.8	0	29.2	+58.2	87.8	0	31.5	+58.4	87.8	0	33.7	+58.7	87.8	0	36.0	+58.9	87.8	0	38.3	+59.0	87.9	0	40.5	+59.3	87.9	0	42.7	+59.4	87.9	1
2	1	24.9	+57.9	87.6	1	27.4	+58.2	87.6	1	29.9	+58.5	87.6	1	32.4	+58.7	87.6	1	34.9	+58.9	87.7	1	37.3	+59.1	87.7	1	39.8	+59.2	87.7	1	42.1	+59.5	87.7	2
3	2	22.8	+58.0	87.3	2	25.6	+58.2	87.3	2	28.4	+58.5	87.4	2	31.1	+58.7	87.4	2	33.8	+58.9	87.5	2	36.4	+59.1	87.5	2	39.0	+59.3	87.6	2	41.6	+59.4	87.6	3
4	3	20.8	+57.9	87.0	3	23.8	+58.3	87.1	3	26.9	+58.4	87.2	3	29.8	+58.7	87.2	3	32.7	+58.9	87.3	3	35.5	+59.1	87.3	3	38.3	+59.2	87.4	3	41.0	+59.4	87.5	4
5	4	18.7	+58.0	86.8	4	22.1	+58.2	86.8	4	25.3	+58.5	86.9	4	28.5	+58.7	87.0	4	31.6	+58.9	87.1	4	34.6	+59.1	87.2	4	37.5	+59.3	87.3	4	40.4	+59.4	87.3	5
6	5	16.7	+57.9	86.5	5	20.3	+58.2	86.6	5	23.8	+58.4	86.7	5	27.2	+58.7	86.8	5	30.5	+58.9	86.9	5	33.7	+59.1	87.0	5	36.8	+59.2	87.1	5	39.8	+59.4	87.2	6
7	6	14.6	+57.9	86.3	6	18.5	+58.2	86.4	6	22.2	+58.5	86.5	6	25.9	+58.6	86.6	6	29.4	+58.9	86.7	6	32.8	+59.0	86.8	6	36.0	+59.3	86.9	6	39.2	+59.4	87.0	7
8	7	12.5	+57.9	86.0	7	16.7	+58.1	86.1	7	20.7	+58.4	86.2	7	24.5	+58.7	86.4	7	28.3	+58.8	86.5	7	31.8	+59.1	86.6	7	35.3	+59.2	86.8	7	38.6	+59.4	86.9	8
9	8	10.4	+58.0	85.7	8	14.8	+58.2	85.9	8	19.1	+58.4	86.0	8	23.2	+58.6	86.2	8	27.1	+58.9	86.3	8	30.9	+59.1	86.5	8	34.5	+59.3	86.6	8	38.0	+59.4	86.8	9
10	9	08.4	+57.9	85.5	9	13.0	+58.2	85.6	9	17.5	+58.4	85.8	9	21.8	+58.7	85.9	9	26.0	+58.9	86.1	9	30.0	+59.0	86.3	9	33.8	+59.2	86.4	9	37.4	+59.4	86.6	10
11	10	06.3	+57.8	85.2	10	11.2	+58.1	85.4	10	15.9	+58.4	85.6	10	20.5	+58.6	85.7	10	24.9	+58.8	85.9	10	29.0	+59.1	86.1	10	33.0	+59.3	86.3	10	36.8	+59.4	86.5	11
12	11	04.1	+57.9	84.9	11	09.3	+58.2	85.1	11	14.3	+58.4	85.3	11	19.1	+58.7	85.5	11	23.7	+58.9	85.7	11	28.1	+59.0	85.9	11	32.3	+59.2	86.1	11	36.2	+59.4	86.3	12
13	12	02.0	+57.9	84.7	12	07.5	+58.1	84.9	12	12.7	+58.4	85.1	12	17.8	+58.6	85.3	12	22.6	+58.8	85.5	12	27.1	+59.1	85.7	12	31.5	+59.2	86.0	12	35.6	+59.4	86.2	13
14	13	59.9	+57.8	84.4	13	10.6	+58.1	84.6	13	11.1	+58.4	84.8	13	16.4	+58.6	85.1	13	21.4	+58.8	85.3	13	26.2	+59.0	85.6	13	30.7	+59.2	85.8	13	35.0	+59.4	86.0	14
15	13	57.7	+57.8	84.1	14	03.7	+58.1	84.4	14	09.5	+58.4	84.6	14	15.0	+58.6	84.9	14	20.2	+58.9	85.1	14	25.2	+59.1	85.4	14	29.9	+59.2	85.6	14	34.4	+59.3	85.9	15
16	14	55.5	+57.8	83.8	15	01.8	+58.1	84.1	15	07.9	+58.3	84.4	15	13.6	+58.6	84.6	15	19.1	+58.8	84.9	15	24.2	+59.1	85.2	15	29.1	+59.3	85.5	15	33.7	+59.4	85.7	16
17	15	53.3	+57.8	83.6	15	59.9	+58.1	83.8	16	06.2	+58.3	84.1	16	12.2	+58.6	84.4	16	17.9	+58.8	84.7	16	23.3	+59.0	85.0	16	28.3	+59.2	85.3	16	33.1	+59.4	85.6	17
18	16	51.1	+57.8	83.3	16	58.0	+58.0	83.6	17	04.5	+58.3	83.9	17	10.8	+58.5	84.2	17	16.7	+58.8	84.5	17	22.3	+59.0	84.8	17	27.5	+59.2	85.1	17	32.5	+59.3	85.4	18
19	17	48.9	+57.7	83.0	17	56.0	+58.0	83.3	18	02.8	+58.3	83.6	18	09.3	+58.6	84.0	18	15.5	+58.7	84.3	18	21.3	+58.9	84.6	18	26.7	+59.2	84.9	18	31.8	+59.4	85.3	19
20	18	46.6	+57.7	82.7	18	54.0	+58.0	83.0	19	01.1	+58.3	83.4	19	07.9	+58.5	83.7	19	14.2	+58.8	84.1	19	20.2	+59.0	84.4	19	25.9	+59.2	84.8	19	31.2	+59.3	85.1	20
21	19	44.3	+57.7	82.4	19	52.0	+58.0	82.8	19	59.4	+58.2	83.1	20	06.4	+58.5	83.5	20	13.0	+58.7	83.9	20	19.2	+59.0	84.2	20	25.1	+59.1	84.6	20	30.5	+59.3	85.0	21
22	20	42.0	+57.6	82.1	20	50.0	+57.9	82.5	20	57.6	+58.3	82.9	21	04.9	+58.5	83.3	21	11.7	+58.7	83.6	21	18.2	+58.9	84.0	21	24.2	+59.1	84.4	21	29.8	+59.4	84.8	22
23	21	39.6	+57.6	81.8	21	47.9	+58.0	82.2	21	55.9	+58.2	82.6	22	03.4	+58.4	83.0	22	10.4	+58.8	83.4	22	17.1	+58.9	83.8	22	23.3	+59.2	84.2	22	29.2	+59.3	84.6	23
24	22	37.2	+57.6	81.5	22	45.9	+57.8	81.9	22	54.1	+58.1	82.4	23	01.8	+58.5	82.8	23	09.2	+58.6	83.2	23	16.0	+58.9	83.6	23	22.5	+59.1	84.1	23	28.5	+59.3	84.5	24
25	23	34.8	+57.6	81.2	23	43.7	+57.9	81.7	23	52.2	+58.2	82.1	24	00.3	+58.4	82.5	24	07.8	+58.7	83.0	24	14.9	+58.9	83.4	24	21.6	+59.1	83.9	24	27.8	+59.3	84.3	25
26	24	32.4	+57.5	80.9	24	41.6	+57.8	81.4	24	50.4	+58.1	81.8	24	58.7	+58.4	82.3	25	06.5	+58.6	82.7	25	20.7	+59.1	83.7	25	27.1	+59.2	84.1	26				
27	25	29.9	+57.4	80.6	25	39.4	+57.8	81.1	25	48.5	+58.1	81.5	25	57.1	+58.3	82.0	26	05.1	+58.7	82.5	26	12.7	+58.9	83.0	26	19.8	+59.1	83.5	26	26.3	+59.3	84.0	27
28	26	27.3	+57.4	80.3	26	37.2	+57.7	80.8	26	46.6	+58.0	81.3	27	03.8	+58.6	82.3	27	11.6	+58.8	82.8	27	18.9	+59.0	83.3	27	25.6	+59.3	83.8	28				
29	27	24.7	+57.4	79.9	27	34.9	+57.7	80.5	27	44.6	+58.0	81.0	27	53.8	+58.3	81.5	28	02.4	+58.5	82.0	28	10.4	+58.8	82.6	28	17.9	+59.1	83.1	28	24.9	+59.2	83.6	29
30	28	22.1	+57.3	79.6	28	32.6	+57.7	80.1	28	42.6	+58.0	80.7	28	52.1	+58.2	81.2	29	00.9	+58.6	81.8	29	09.2	+58.8	82.3	29	17.0	+59.0	82.9	29	24.1	+59.2	83.4	30
31	29	19.4	+57.3	79.3	29	30.3	+57.6	79.8	29	40.6	+57.9	80.4	29	50.3	+58.3	81.0	29	59.5	+58.5	81.5	30	08.0	+58.8	82.1	30	16.0	+59.0	82.7	30	23.3	+59.2	83.3	31
32	30	16.7	+57.2	78.9	30	27.9	+57.6	79.5	30	38.5	+57.9	80.1	30	48.6	+58.2	80.7	30	58.0	+58.5	81.3	31	06.8	+58.7	81.9	31	15.0	+58.9	82.5	31	22.5	+59.2	83.1	32
33	31	13.9	+57.2	78.6	31	25.5	+57.5	79.2	31	36.4	+57.9	79.8	31	46.8	+58.1	80.4	31	56.5	+58.4	81.0	32	05.5	+58.7	81.6	32	13.9	+59.2	82.9	33				
34	32	11.1	+57.1	78.2	32	33.4	+57.5	78.8	32	44.9	+58.2</td																						

89°, 271° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	0 15.5 +58.0	91.0	0 14.5 +58.2	91.0	0 13.5 +58.5	91.0	0 12.5 +58.7	91.0	0 11.4 +58.9	91.0	0 10.4 +59.1	91.0	0 09.4 +59.2	91.0	0 08.3 +59.5	91.0	0 07.8 +59.5	91.0	0 06.0 +59.4	90.4	0 05.4 +59.4	90.3	0		
1	1 13.5 +57.9	90.7	1 12.7 +58.2	90.7	1 12.0 +58.4	90.7	1 11.2 +58.7	90.8	1 10.3 +58.9	90.8	1 09.5 +59.1	90.8	1 08.6 +59.3	90.8	1 07.8 +59.4	90.9	1 07.2 +59.4	90.7	2 07.2 +59.4	90.7	2 07.2 +59.4	90.7	2		
2	2 11.4 +58.0	90.4	2 10.9 +58.3	90.5	2 10.4 +58.5	90.5	2 09.9 +58.6	90.6	2 09.2 +58.9	90.6	2 08.6 +59.1	90.6	2 07.9 +59.3	90.7	2 07.2 +59.4	90.7	2 07.2 +59.4	90.7	3 07.2 +59.2	90.5	3 06.6 +59.4	90.6	3		
3	3 09.4 +57.9	90.2	3 09.2 +58.2	90.2	3 08.9 +58.4	90.3	3 08.5 +58.7	90.4	3 08.1 +58.9	90.4	3 07.7 +59.1	90.5	3 07.2 +59.2	90.5	3 06.6 +59.4	90.6	3 06.0 +59.4	90.4	4 06.4 +59.3	90.4	4 06.0 +59.4	90.4	4		
4	4 07.3 +58.0	89.9	4 07.4 +58.2	90.0	4 07.3 +58.5	90.1	4 07.2 +58.7	90.1	4 07.0 +58.9	90.2	4 06.8 +59.0	90.3	4 06.4 +59.3	90.4	4 06.0 +59.4	90.4	4 06.0 +59.4	90.4	4 06.4 +59.4	90.4	4 06.0 +59.4	90.4	4		
5	5 05.3 +57.9	89.7	5 05.6 +58.2	89.8	5 05.8 +58.4	89.8	5 05.9 +58.7	89.9	5 05.9 +58.9	90.0	5 05.8 +59.0	90.1	5 05.7 +59.2	90.2	5 05.4 +59.4	90.3	5 05.4 +59.4	90.3	5 05.4 +59.4	90.3	5 05.4 +59.4	90.3	5		
6	6 03.2 +57.9	89.4	6 03.8 +58.2	89.5	6 04.2 +58.5	89.6	6 04.6 +58.7	89.7	6 04.8 +58.9	89.8	6 04.9 +59.1	89.9	6 04.9 +59.3	90.0	6 04.8 +59.4	90.2	6 04.8 +59.4	90.2	6 04.8 +59.4	90.2	6 04.8 +59.4	90.2	6		
7	7 01.1 +58.0	89.1	7 02.0 +58.2	89.3	7 02.7 +58.4	89.4	7 03.3 +58.6	89.5	7 03.7 +58.9	89.6	7 04.0 +59.1	89.8	7 04.2 +59.2	89.9	7 04.2 +59.4	90.0	7 04.2 +59.4	90.0	7 04.2 +59.4	90.0	7 04.2 +59.4	90.0	7		
8	8 59.1 +57.9	88.9	8 00.2 +58.1	89.0	8 01.1 +58.4	89.2	8 01.9 +58.7	89.3	8 02.6 +58.8	89.4	8 03.1 +59.0	89.6	8 03.4 +59.3	89.7	8 03.6 +59.5	89.9	8 03.6 +59.5	89.9	8 03.6 +59.5	89.9	8 03.6 +59.5	89.9	8		
9	8 57.0 +57.9	88.6	8 58.3 +58.2	88.8	8 59.5 +58.5	88.9	9 00.6 +58.6	89.1	9 01.4 +58.9	89.2	9 02.1 +59.1	89.4	9 02.7 +59.2	89.6	9 03.1 +59.4	89.7	9 03.1 +59.4	89.7	9 03.1 +59.4	89.7	9 03.1 +59.4	89.7	9		
10	9 54.9 +57.9	88.4	9 56.5 +58.2	88.5	9 58.0 +58.4	88.7	9 59.2 +58.7	88.9	10 00.3 +58.9	89.1	10 01.2 +59.1	89.2	10 01.9 +59.3	89.4	10 02.5 +59.3	89.6	10 02.5 +59.3	89.6	10 02.5 +59.3	89.6	10 02.5 +59.3	89.6	10		
11	10 52.8 +57.8	88.1	10 54.7 +58.1	88.3	10 56.4 +58.4	88.5	10 57.9 +58.6	88.7	10 59.2 +58.8	88.9	11 00.3 +59.0	89.1	11 01.2 +59.2	89.2	11 01.8 +59.4	89.4	11 01.8 +59.4	89.4	11 01.8 +59.4	89.4	11 01.8 +59.4	89.4	11		
12	11 50.6 +57.9	87.8	11 52.8 +58.1	88.0	11 54.8 +58.4	88.2	11 56.5 +58.6	88.4	11 58.0 +58.9	88.7	11 59.3 +59.1	88.9	12 00.4 +59.2	89.1	12 01.2 +59.4	89.3	12 01.2 +59.4	89.3	12 01.2 +59.4	89.3	12 01.2 +59.4	89.3	12		
13	12 48.5 +57.8	87.5	12 50.9 +58.2	87.8	12 53.2 +58.3	88.0	12 55.1 +58.6	88.2	12 56.9 +58.8	88.5	12 58.4 +59.0	88.7	12 59.6 +59.2	88.9	13 00.6 +59.4	89.1	13 00.6 +59.4	89.1	13 00.6 +59.4	89.1	13 00.6 +59.4	89.1	13		
14	13 46.3 +57.9	87.3	13 49.1 +58.1	87.5	13 51.5 +58.4	87.8	13 53.7 +58.6	88.0	13 55.7 +58.8	88.3	13 57.4 +59.0	88.5	13 58.8 +59.2	88.8	14 00.0 +59.4	89.0	14 00.0 +59.4	89.0	14 00.0 +59.4	89.0	14 00.0 +59.4	89.0	14		
15	14 44.2 +57.8	87.0	14 47.2 +58.0	87.3	14 49.9 +58.3	87.5	14 52.3 +58.6	87.8	14 54.5 +58.8	88.1	14 56.4 +59.0	88.3	14 58.0 +59.2	88.6	14 59.4 +59.4	88.9	14 59.4 +59.4	88.9	14 59.4 +59.4	88.9	14 59.4 +59.4	88.9	15		
16	15 42.0 +57.7	86.7	15 45.2 +58.1	87.0	15 48.2 +58.4	87.3	15 50.9 +58.6	87.6	15 53.3 +58.8	87.8	15 55.4 +59.1	88.1	15 57.2 +59.2	88.4	15 58.8 +59.3	88.7	15 58.8 +59.3	88.7	15 58.8 +59.3	88.7	15 58.8 +59.3	88.7	16		
17	16 39.7 +57.8	86.4	16 43.3 +58.1	86.7	16 46.6 +58.3	87.0	16 49.5 +58.6	87.3	16 52.1 +58.8	87.6	16 54.5 +59.0	87.9	16 56.4 +59.2	88.2	16 58.1 +59.4	88.6	16 58.1 +59.4	88.6	16 58.1 +59.4	88.6	16 58.1 +59.4	88.6	17		
18	17 37.5 +57.7	86.2	17 41.4 +58.0	86.5	17 44.9 +58.3	86.8	17 48.1 +58.5	87.1	17 50.9 +58.8	87.4	17 53.5 +58.9	87.8	17 55.6 +59.2	88.1	17 57.5 +59.3	88.4	17 57.5 +59.3	88.4	17 57.5 +59.3	88.4	17 57.5 +59.3	88.4	18		
19	18 35.2 +57.7	85.9	18 39.4 +58.0	86.2	18 43.2 +58.2	86.5	18 46.6 +58.5	86.9	18 49.7 +58.8	87.2	18 52.4 +59.0	87.6	18 54.8 +59.2	87.9	18 56.8 +59.4	88.2	18 56.8 +59.4	88.2	18 56.8 +59.4	88.2	18 56.8 +59.4	88.2	19		
20	19 32.9 +57.7	85.6	19 37.4 +57.9	85.9	19 41.4 +58.3	86.3	19 45.1 +58.6	86.6	19 48.5 +58.7	87.0	19 51.4 +59.0	87.4	19 54.0 +59.1	87.7	19 56.2 +59.3	88.1	19 56.2 +59.3	88.1	19 56.2 +59.3	88.1	19 56.2 +59.3	88.1	20		
21	20 30.6 +57.7	85.3	20 35.3 +58.0	85.7	20 39.7 +58.2	86.0	20 43.7 +58.4	86.4	20 47.2 +58.7	86.8	20 50.4 +58.9	87.2	20 53.1 +59.2	87.5	20 55.5 +59.3	87.9	20 55.5 +59.3	87.9	20 55.5 +59.3	87.9	20 55.5 +59.3	87.9	21		
22	21 28.3 +57.6	85.0	21 33.3 +57.9	85.4	21 37.9 +58.2	85.8	21 42.1 +58.5	86.2	21 45.9 +58.8	86.6	21 49.3 +59.0	87.0	21 52.3 +59.1	87.4	21 54.8 +59.4	87.8	21 54.8 +59.4	87.8	21 54.8 +59.4	87.8	21 54.8 +59.4	87.8	22		
23	22 25.9 +57.6	84.7	22 31.2 +57.9	85.1	22 36.1 +58.2	85.5	22 40.6 +58.5	85.9	22 44.7 +58.6	86.3	22 48.3 +58.9	86.8	22 51.4 +59.1	87.2	22 54.2 +59.3	87.6	22 54.2 +59.3	87.6	22 54.2 +59.3	87.6	22 54.2 +59.3	87.6	23		
24	23 23.5 +57.5	84.4	23 29.1 +57.9	84.8	23 34.3 +58.2	85.2	23 39.1 +58.4	85.7	23 43.3 +58.7	86.1	23 47.2 +58.9	86.6	23 50.5 +59.2	87.0	23 53.5 +59.3	87.4	23 53.5 +59.3	87.4	23 53.5 +59.3	87.4	23 53.5 +59.3	87.4	24		
25	24 21.0 +57.5	84.1	24 27.0 +57.8	84.5	24 32.5 +58.1	85.0	24 37.5 +58.4	85.4	24 42.0 +58.7	85.9	24 46.1 +58.9	86.3	24 49.7 +59.1	86.8	24 52.8 +59.2	87.3	24 52.8 +59.2	87.3	24 52.8 +59.2	87.3	24 52.8 +59.2	87.3	25		
26	25 18.5 +57.5	83.8	25 24.8 +57.8	84.2	25 30.6 +58.1	84.7	25 35.9 +58.3	85.2	25 40.7 +58.6	85.7	25 45.0 +58.8	86.1	25 48.8 +59.0	86.6	25 52.0 +59.3	87.1	25 52.0 +59.3	87.1	25 52.0 +59.3	87.1	25 52.0 +59.3	87.1	26		
27	26 16.0 +57.4	83.4	26 22.6 +57.7	83.9	26 28.7 +58.0	84.4	26 34.2 +58.4	84.9	26 39.3 +58.6	85.4	26 43.8 +58.9	85.9	26 47.8 +59.1	86.4	26 51.3 +59.3	86.9	26 51.3 +59.3	86.9	26 51.3 +59.3	86.9	26 51.3 +59.3	86.9	27		
28	27 13.4 +57.4	83.1	27 20.3 +57.8	83.6	27 26.7 +58.1	84.1	27 32.6 +58.3	84.7	27 37.9 +58.6	85.2	27 42.7 +58.9	85.7	27 47.4 +59.1	86.2	27 51.0 +59.3	86.7	27 54.6 +59.5	87.0	27 54.6 +59.5	87.0	27 54.6 +59.5	87.0	28		
29	28 10.8 +57.3	82.8	28 18.1 +57.6	83.3	28 24.8 +57.9	83.9	28 30.9 +58.3	84.0	28 36.9 +58.4	84.3	28 42.5 +58.7	84.7	28 48.1 +59.1	85.0	28 53.5 +59.6	85.3	28 58.9 +59.8	85.6	28 64.0 +59.9	85.9	28 69.0 +59.9	85.9	28		
30	29 08.1 +57.3	82.4	29 15.7 +57.6	83.0	29 22.7 +58.0	83.6	29 29.2 +58.2	84.1	29 35.0 +58.6	84.7	29 40.3 +58.8	85.3	29 45.0 +59.0	85.8	29 49.0 +59.3	86.4	29 49.0 +59.3	86.4	29 49.0 +59.3	86.4	29 49.0 +59.3	86.4	30		
31	30 05.4 +57.2	82.1	30 13.3 +57.6	82.7	30 20.7 +57.9	83.3	30 27.4 +58.2	83.8	30 33.6 +58.5	84.4	30 39.1 +58.7	85.0	30 44.0 +59.0	85.6	30 48.3 +59.2	86.2	30 48.3 +59.2	86.2	30 48.3 +59.2	86.2	30 48.3 +59.2	86.2	31		
32	31 02.6 +57.2	81.8	31 10.9 +57.5	82.4	31 18.6 +57.9	83.0	31 25.6 +58																		

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 89°, 271°

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.								
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z									
0	0	15.5	-57.9	91.0	0	14.5	-58.2	91.0	0	13.5	-58.5	91.0	0	12.5	-58.7	91.0	0	11.4	-58.8	91.0	0	10.4	-59.1	91.0	0	09.4	-59.3	91.0	0	08.3	-59.4	91.0	0
1	0	42.4	+58.0	88.8	0	43.7	+58.2	88.8	0	45.0	+58.4	88.8	0	46.2	+58.7	88.8	0	47.4	+58.9	88.8	0	48.7	+59.1	88.8	0	49.9	+59.2	88.9	0	51.1	+59.4	88.9	1
2	1	40.4	+57.9	88.5	1	41.9	+58.2	88.5	1	43.4	+58.5	88.6	1	44.9	+58.7	88.6	1	46.3	+58.9	88.6	1	47.8	+59.0	88.7	1	49.1	+59.3	88.7	1	50.5	+59.4	88.7	2
3	2	38.3	+58.0	88.3	2	40.1	+58.2	88.3	2	41.9	+58.4	88.4	2	43.6	+58.7	88.4	2	45.2	+58.9	88.4	2	46.8	+59.1	88.5	2	48.4	+59.3	88.5	2	49.9	+59.4	88.6	3
4	3	36.3	+57.9	88.0	3	38.3	+58.3	88.1	3	40.3	+58.5	88.1	3	42.3	+58.7	88.2	3	44.1	+58.9	88.3	3	45.9	+59.1	88.3	3	47.7	+59.2	88.4	3	49.3	+59.4	88.5	4
5	4	34.2	+58.0	87.7	4	36.6	+58.2	87.8	4	38.8	+58.5	87.9	4	41.0	+58.6	88.0	4	43.0	+58.9	88.1	4	45.0	+59.1	88.1	4	48.7	+59.4	88.3	5				
6	5	32.2	+57.9	87.5	5	34.8	+58.2	87.6	5	37.3	+58.4	87.7	5	39.6	+58.7	87.8	5	41.9	+58.9	87.9	5	44.1	+59.1	88.0	5	46.2	+59.2	88.1	5	48.1	+59.4	88.2	6
7	6	30.1	+57.9	87.2	6	33.0	+58.2	87.3	6	35.7	+58.4	87.4	6	38.3	+58.7	87.6	6	40.8	+58.9	87.7	6	43.2	+59.0	87.8	6	45.4	+59.3	87.9	7				
8	7	28.0	+57.9	87.0	7	31.2	+58.1	87.1	7	34.1	+58.5	87.2	7	37.0	+58.6	87.3	7	39.7	+58.9	87.5	7	42.2	+59.1	87.6	7	44.7	+59.2	87.8	8				
9	8	25.9	+57.9	86.7	8	29.3	+58.2	86.8	8	32.6	+58.4	87.0	8	35.6	+58.7	87.1	8	38.6	+58.8	87.3	8	41.3	+59.1	87.4	8	43.9	+59.3	87.6	9				
10	9	23.8	+57.9	86.4	9	27.5	+58.2	86.6	9	31.0	+58.4	86.8	9	34.3	+58.6	86.9	9	37.4	+58.9	87.1	9	40.4	+59.0	87.3	9	43.2	+59.2	87.4	9	45.8	+59.4	87.6	10
11	10	21.7	+57.9	86.2	10	25.7	+58.1	86.3	10	29.4	+58.4	86.5	10	32.9	+58.7	86.7	10	36.3	+58.8	86.9	10	39.4	+59.1	87.1	10	42.4	+59.2	87.3	11				
12	11	19.6	+57.9	85.9	11	23.8	+58.2	86.1	11	27.8	+58.4	86.3	11	31.6	+58.6	86.5	11	35.1	+58.9	86.7	11	38.5	+59.0	86.9	11	41.6	+59.3	87.1	12				
13	12	17.5	+57.8	85.6	12	22.0	+58.1	85.8	12	26.2	+58.4	86.1	12	30.2	+58.6	86.3	12	34.0	+58.8	86.5	12	37.5	+59.1	86.7	12	40.9	+59.2	86.9	13				
14	13	15.3	+57.9	85.3	13	20.1	+58.1	85.6	13	24.6	+58.3	85.8	13	28.8	+58.6	86.1	13	32.8	+58.9	86.3	13	36.6	+59.0	86.5	13	40.1	+59.2	86.8	14				
15	14	13.2	+57.8	85.1	14	18.2	+58.1	85.3	14	22.9	+58.4	85.6	14	27.4	+58.6	85.8	14	31.7	+58.8	86.1	14	35.6	+59.0	86.4	14	39.3	+59.2	86.6	15				
16	15	11.0	+57.8	84.8	15	16.3	+58.1	85.1	15	21.3	+58.3	85.3	15	26.0	+58.6	85.6	15	30.5	+58.8	85.9	15	34.6	+59.0	86.2	15	38.5	+59.2	86.4	16				
17	16	08.8	+57.7	84.5	16	14.4	+58.0	84.8	16	19.6	+58.4	85.1	16	24.6	+58.6	85.4	16	29.3	+58.8	85.7	16	33.6	+59.0	86.0	16	37.7	+59.2	86.3	17				
18	17	06.5	+57.8	84.2	17	12.4	+58.0	84.5	17	18.0	+58.3	84.9	17	23.2	+58.5	85.2	17	28.1	+58.8	85.5	17	32.6	+59.0	85.8	17	36.9	+59.2	86.1	18				
19	18	04.3	+57.7	83.9	18	10.4	+58.1	84.3	18	16.3	+58.2	84.6	18	21.7	+58.6	84.9	18	26.9	+58.7	85.3	18	31.6	+59.1	85.6	18	36.1	+59.4	86.3	19				
20	19	02.0	+57.7	83.7	19	08.5	+57.9	84.0	19	14.5	+58.3	84.4	19	20.3	+58.5	84.7	19	25.6	+58.8	85.1	19	30.6	+59.0	85.4	19	35.2	+59.2	85.8	20				
21	20	59.7	+57.7	83.4	20	06.4	+58.0	83.7	20	12.8	+58.2	84.1	20	18.8	+58.5	84.5	20	24.4	+58.7	84.8	20	29.6	+58.9	85.2	20	34.4	+59.2	85.6	21				
22	20	57.4	+57.6	83.1	21	04.4	+57.9	83.5	21	11.0	+58.3	83.8	21	17.3	+58.5	84.2	21	23.1	+58.7	84.6	21	28.5	+59.0	85.0	21	33.6	+59.1	85.4	22				
23	21	55.0	+57.6	82.8	22	02.3	+57.9	83.2	22	09.3	+58.2	83.6	22	15.8	+58.4	84.0	22	21.8	+58.7	84.4	22	27.5	+58.9	84.8	22	32.7	+59.1	85.2	23				
24	22	52.6	+57.6	82.5	23	00.2	+57.9	82.9	23	07.5	+58.1	83.3	23	14.2	+58.4	83.7	23	20.5	+58.7	84.2	23	26.4	+58.9	84.6	23	31.8	+59.1	85.0	24				
25	23	50.2	+57.5	82.2	23	58.1	+57.9	82.6	24	05.6	+58.2	83.0	24	12.6	+58.5	83.5	24	19.2	+58.7	83.9	24	25.3	+58.9	84.4	24	30.9	+59.1	84.8	25				
26	24	47.7	+57.5	81.9	24	56.0	+57.8	82.3	25	03.8	+58.1	82.8	25	11.1	+58.3	83.2	25	17.9	+58.6	83.7	25	24.2	+58.9	84.2	25	30.0	+59.1	84.7	26				
27	25	45.2	+57.4	81.5	25	53.8	+57.7	82.0	26	01.9	+58.0	82.5	26	09.4	+58.4	83.0	26	16.5	+58.6	83.5	26	23.1	+58.8	84.0	26	29.1	+59.1	84.5	27				
28	26	42.6	+57.4	81.2	26	51.5	+57.8	81.7	26	59.9	+58.1	82.2	27	07.8	+58.3	82.7	27	15.1	+58.6	83.2	27	21.9	+58.9	83.7	27	28.2	+59.0	84.3	28				
29	27	40.0	+57.4	80.9	27	37.3	+57.4	81.4	27	58.0	+58.0	81.9	28	06.1	+58.3	82.5	28	13.7	+58.6	83.0	28	20.8	+58.8	83.5	28	27.2	+59.1	84.1	29				
30	28	37.4	+57.3	80.6	28	47.0	+57.6	81.1	28	56.0	+57.9	81.6	29	04.4	+58.3	82.2	29	12.3	+58.5	82.7	29	19.6	+58.8	83.3	29	26.3	+59.0	83.9	30				
31	29	34.7	+57.3	80.2	29	44.6	+57.6	80.8	29	53.9	+58.0	81.3	30	02.7	+58.2	81.9	30	10.8	+58.5	82.5	30	18.4	+58.7	83.1	30	25.3	+59.0	83.7	31				
32	30	32.0	+57.2	79.9	30	42.2	+57.6	80.5	30	51.9	+57.8	81.0	31	00.9	+58.2	81.6	31	09.3	+58.5	82.2	31	17.1	+58.7	82.8	31	24.3	+59.0	83.4	32				
33	31	29.2	+57.1	79.5	31	39.8	+57.5	80.1	31	49.7	+57.9	80.7	31	59.1	+58.1	81.4	32	07.8	+58.4	82.0	32	15.8	+58.8	82.6	32	23.3	+58.9	83.2	33				
34	32	26.3	+57.1	79.2	32	37.3	+57.4	79.8	32	47.6	+57.8	80.4	33	57.2	+58.1	81.1	33	06.2	+58.4	81.7	33	14.6	+58.6	82.3	33	22.2	+58.9	83.0	34				
35	33	23.4	+57.0	78.8	33	34.7	+57.7	80.1	34	45.4	+57.7	80.8	34	04.6	+58.4	81.4	34	13.2	+58.7	82.1	34	21.1	+58.9	82.8	34	28.3	+59.2	83.5	35				
36	34	20.4	+56.9	78.4	34	32.1	+57.3	79.1	34	43.1	+57.7	79.8	35	03.0	+58.3	81.1	35	11.9	+58.6	81.8	35	20.0	+58.9	82.5	35	27.5	+59.1	83.2	36				
37	35	17.3	+56.9	78.0	35	29.4	+57.3	78.7	35	40.8	+57.6	79.4	35	31.5</																			

90°, 270° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	0 00.0 +58.0	90.0	0 00.0 +58.2	90.0	0 00.0 +58.5	90.0	0 00.0 +58.7	90.0	0 00.0 +58.9	90.0	0 00.0 +59.1	90.0	0 00.0 +59.3	90.0	0 00.0 +59.4	90.0	0 00.0 +59.4	90.0	0 00.0 +59.4	90.0	0 00.0 +59.4	90.0	0		
1	0 58.0 +57.9	89.7	0 58.2 +58.2	89.8	0 58.5 +58.4	89.8	0 58.7 +58.7	89.8	0 58.9 +58.9	89.8	0 59.1 +59.1	89.8	0 59.3 +59.2	89.8	0 59.4 +59.4	89.9	0 59.4 +59.4	89.9	0 59.4 +59.4	89.9	0 59.4 +59.4	89.9	1		
2	1 55.9 +58.0	89.5	1 56.4 +58.2	89.5	1 56.9 +58.5	89.5	1 57.4 +58.7	89.6	1 57.8 +58.9	89.6	1 58.2 +59.1	89.7	1 58.5 +59.3	89.7	1 58.8 +59.4	89.7	1 58.8 +59.4	89.7	1 58.8 +59.4	89.7	1 58.8 +59.4	89.7	2		
3	2 53.9 +57.9	89.2	2 54.6 +58.3	89.3	2 55.4 +58.4	89.3	2 56.1 +58.6	89.4	2 56.7 +58.9	89.4	2 57.3 +59.0	89.5	2 57.8 +59.2	89.5	2 58.2 +59.5	89.6	2 58.6 +59.5	89.6	2 58.6 +59.5	89.6	2 58.6 +59.5	89.6	3		
4	3 51.8 +58.0	89.0	3 52.9 +58.2	89.0	3 53.8 +58.5	89.1	3 54.7 +58.7	89.2	3 55.6 +58.9	89.2	3 56.3 +59.1	89.3	3 57.0 +59.3	89.4	3 57.7 +59.4	89.4	3 57.7 +59.4	89.4	3 57.7 +59.4	89.4	3 57.7 +59.4	89.4	4		
5	4 49.8 +57.9	88.7	4 51.1 +58.2	88.8	4 52.3 +58.4	88.9	4 53.4 +58.7	89.0	4 54.5 +58.9	89.0	4 55.4 +59.1	89.1	4 56.3 +59.3	89.2	4 57.1 +59.4	89.3	4 57.1 +59.4	89.3	4 57.1 +59.4	89.3	4 57.1 +59.4	89.3	5		
6	5 47.7 +57.9	88.4	5 49.3 +58.2	88.5	5 50.7 +58.5	88.6	5 52.1 +58.7	88.7	5 53.4 +58.8	88.9	5 54.5 +59.1	89.0	5 55.6 +59.2	89.1	5 56.5 +59.4	89.2	5 56.5 +59.4	89.2	5 56.5 +59.4	89.2	5 56.5 +59.4	89.2	6		
7	6 45.6 +57.9	88.2	6 47.5 +58.2	88.3	6 49.2 +58.4	88.4	6 50.8 +58.6	88.5	6 52.2 +58.9	88.7	6 53.6 +59.1	88.8	6 54.8 +59.3	88.9	6 55.9 +59.4	89.0	6 55.9 +59.4	89.0	6 55.9 +59.4	89.0	6 55.9 +59.4	89.0	7		
8	7 43.5 +58.0	87.9	7 45.7 +58.1	88.1	7 47.6 +58.4	88.2	7 49.4 +58.7	88.3	7 51.1 +58.9	88.5	7 52.7 +59.0	88.6	7 54.1 +59.2	88.7	7 55.3 +59.4	88.8	7 55.3 +59.4	88.8	7 55.3 +59.4	88.8	7 55.3 +59.4	88.8	8		
9	8 41.5 +57.9	87.7	8 43.8 +58.2	87.8	8 46.0 +58.5	88.0	8 48.1 +58.7	88.1	8 50.0 +58.9	88.3	8 51.7 +59.1	88.4	8 53.3 +59.2	88.6	8 54.7 +59.4	88.7	8 54.7 +59.4	88.7	8 54.7 +59.4	88.7	8 54.7 +59.4	88.7	9		
10	9 39.4 +57.8	87.4	9 42.0 +58.2	87.6	9 44.5 +58.4	87.7	9 46.8 +58.6	87.9	9 48.9 +58.8	88.1	9 50.8 +59.1	88.2	9 52.5 +59.3	88.4	9 54.1 +59.4	88.6	9 54.1 +59.4	88.6	9 54.1 +59.4	88.6	9 54.1 +59.4	88.6	10		
11	10 37.2 +57.9	87.1	10 40.2 +58.1	87.3	10 42.9 +58.4	87.5	10 45.4 +58.6	87.7	10 47.7 +58.9	87.9	10 49.9 +59.0	88.1	10 51.8 +59.2	88.3	10 53.5 +59.4	88.5	10 53.5 +59.4	88.5	10 53.5 +59.4	88.5	10 53.5 +59.4	88.5	11		
12	11 35.1 +57.9	86.9	11 38.3 +58.1	87.1	11 41.3 +58.4	87.3	11 44.0 +58.7	87.5	11 46.6 +58.8	87.7	11 48.9 +59.0	87.9	11 51.0 +59.2	88.1	11 52.9 +59.4	88.3	11 52.9 +59.4	88.3	11 52.9 +59.4	88.3	11 52.9 +59.4	88.3	12		
13	12 33.0 +57.8	86.6	12 36.4 +58.2	86.8	12 39.7 +58.3	87.0	12 42.7 +58.6	87.3	12 45.4 +58.9	87.5	12 47.9 +59.1	87.7	12 50.2 +59.3	87.9	12 52.3 +59.4	88.2	12 52.3 +59.4	88.2	12 52.3 +59.4	88.2	12 52.3 +59.4	88.2	13		
14	13 30.8 +57.9	86.3	13 34.6 +58.1	86.5	13 38.0 +58.4	86.8	13 41.3 +58.6	87.0	13 44.3 +58.8	87.3	13 47.0 +59.0	87.5	13 49.5 +59.2	87.8	13 51.7 +59.3	88.0	13 51.7 +59.3	88.0	13 51.7 +59.3	88.0	13 51.7 +59.3	88.0	14		
15	14 28.7 +57.8	86.0	14 32.7 +58.1	86.3	14 36.4 +58.4	86.6	14 39.9 +58.6	86.8	14 43.1 +58.8	87.1	14 46.0 +59.0	87.3	14 48.7 +59.2	87.6	14 51.0 +59.4	87.9	14 51.0 +59.4	87.9	14 51.0 +59.4	87.9	14 51.0 +59.4	87.9	15		
16	15 26.5 +57.7	85.8	15 30.8 +58.0	86.0	15 34.8 +58.3	86.3	15 38.5 +58.6	86.6	15 41.9 +58.8	86.9	15 45.0 +59.0	87.1	15 47.9 +59.2	87.4	15 50.4 +59.4	87.7	15 50.4 +59.4	87.7	15 50.4 +59.4	87.7	15 50.4 +59.4	87.7	16		
17	16 24.2 +57.8	85.5	16 28.8 +58.1	85.8	16 33.1 +58.3	86.1	16 37.1 +58.5	86.4	16 40.7 +58.8	86.7	16 44.0 +59.0	87.0	16 47.1 +59.2	87.3	16 49.8 +59.3	87.6	16 49.8 +59.3	87.6	16 49.8 +59.3	87.6	16 49.8 +59.3	87.6	17		
18	17 22.0 +57.7	85.2	17 26.9 +58.0	85.5	17 31.4 +58.3	85.8	17 35.6 +58.6	86.1	17 39.5 +58.8	86.5	17 43.0 +59.0	86.8	17 46.3 +59.1	87.1	17 49.1 +59.4	87.4	17 49.1 +59.4	87.4	17 49.1 +59.4	87.4	17 49.1 +59.4	87.4	18		
19	18 19.7 +57.8	84.9	18 24.9 +58.0	85.2	18 29.7 +58.3	85.6	18 34.2 +58.5	85.9	18 38.3 +58.7	86.2	18 42.0 +58.9	86.6	18 45.4 +59.2	86.9	18 48.5 +59.3	87.3	18 48.5 +59.3	87.3	18 48.5 +59.3	87.3	18 48.5 +59.3	87.3	19		
20	19 17.5 +57.6	84.6	19 22.9 +58.0	85.0	19 28.0 +58.2	85.3	19 32.7 +58.5	85.7	19 37.0 +58.8	86.0	19 41.0 +59.0	86.4	19 44.6 +59.2	86.7	19 47.8 +59.4	87.1	19 47.8 +59.4	87.1	19 47.8 +59.4	87.1	19 47.8 +59.4	87.1	20		
21	20 15.1 +57.7	84.3	20 20.9 +57.9	84.7	20 26.2 +58.3	85.1	20 31.2 +58.5	85.5	20 35.8 +58.7	85.8	20 40.0 +58.9	86.2	20 43.8 +59.1	86.6	20 47.2 +59.3	86.9	20 47.2 +59.3	86.9	20 47.2 +59.3	86.9	20 47.2 +59.3	86.9	21		
22	21 12.8 +57.6	84.0	21 18.8 +58.0	84.4	21 24.5 +58.2	84.8	21 29.7 +58.5	85.2	21 34.5 +58.7	85.6	21 38.9 +58.9	86.0	21 42.9 +59.2	86.4	21 46.5 +59.3	86.8	21 46.5 +59.3	86.8	21 46.5 +59.3	86.8	21 46.5 +59.3	86.8	22		
23	22 10.4 +57.6	83.7	22 16.8 +57.9	84.1	22 22.7 +58.2	84.5	22 28.2 +58.4	85.0	22 33.2 +58.7	85.4	22 37.9 +58.9	85.8	22 42.1 +59.1	86.2	22 45.8 +59.3	86.6	22 45.8 +59.3	86.6	22 45.8 +59.3	86.6	22 45.8 +59.3	86.6	23		
24	23 08.0 +57.6	83.4	23 14.7 +57.8	83.9	23 20.9 +58.1	84.3	23 26.6 +58.5	84.7	23 31.9 +58.7	85.1	23 36.8 +58.9	85.6	23 41.2 +59.1	86.0	23 45.1 +59.3	86.5	23 45.1 +59.3	86.5	23 45.1 +59.3	86.5	23 45.1 +59.3	86.5	24		
25	24 05.6 +57.5	83.1	24 12.5 +57.9	83.6	24 19.0 +58.2	84.0	24 25.1 +58.4	84.5	24 30.6 +58.7	84.9	24 35.7 +58.9	85.4	24 40.3 +59.1	85.8	24 44.4 +59.3	86.3	24 44.4 +59.3	86.3	24 44.4 +59.3	86.3	24 44.4 +59.3	86.3	25		
26	25 03.1 +57.5	82.8	25 10.4 +57.8	83.3	25 17.2 +58.1	83.7	25 23.5 +58.3	84.2	25 29.3 +58.6	84.7	25 34.6 +58.8	85.2	25 39.4 +59.1	85.6	25 43.7 +59.3	86.1	25 43.7 +59.3	86.1	25 43.7 +59.3	86.1	25 43.7 +59.3	86.1	26		
27	26 00.6 +57.4	82.5	26 08.2 +57.7	83.0	26 15.3 +58.0	83.5	26 21.8 +58.4	84.0	26 27.9 +58.6	84.4	26 33.4 +58.9	84.9	26 38.5 +59.0	85.0	26 43.0 +59.2	85.5	26 43.0 +59.2	85.5	26 43.0 +59.2	85.5	26 43.0 +59.2	85.5	27		
28	26 58.0 +57.4	82.2	27 05.9 +57.7	82.7	27 13.8 +58.0	83.2	27 20.2 +58.3	83.7	27 26.5 +58.6	84.2	27 32.3 +58.8	84.7	27 37.5 +59.1	85.2	27 42.2 +59.3	85.8	27 42.2 +59.3	85.8	27 42.2 +59.3	85.8	27 42.2 +59.3	85.8	28		
29	27 55.4 +57.3	81.8	28 03.6 +57.7	82.4	28 11.0 +57.9	83.4	28 17.6 +58.2	84.1	28 23.4 +58.5	84.6	28 29.1 +58.8	85.2	28 34.8 +59.1	85.7	28 39.6 +59.4	86.0	28 41.5 +59.5	86.5	28 41.5 +59.5	86.5	28 41.5 +59.5	86.5	29		
30	28 52.7 +57.3	81.5	29 01.3 +57.7	82.0	29 09.3 +58.0	82.6	29 16.8 +58.2	83.2	29 23.6 +58.6	83.7	29 29.9 +58.8	84.3	29 35.6 +59.0	84.8	29 40.7 +59.2	85.4	29 40.7 +59.2	85.4	29 40.7 +59.2	85.4	29 40.7 +59.2	85.4	30		
31	29 50.0 +57.3	81.2	29 59.0 +57.6	81.7	30 07.3 +57.9	82.3	30 15.0 +58.3	82.9	30 22.2 +58.5	83.5	30 28.7 +58.8	84.0	30 34.6 +59.0	84.6	30 39.9 +59.2	85.2	30 39.9 +59.2	85.2	30 39.9 +59.2	85.2	30 39.9 +59.2	85.2	31		
32	30 47.3 +57.2	80.8	31 05.6 +57.5	81.4	31 15.2 +57.9	82.0	31 13.3 +58.1	82.6	31 19.7																

LATITUDE *CONTRARY NAME TO DECLINATION **L.H.A. 90°, 270°**

Dec.	75°			76°			77°			78°			79°			80°			81°			82°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	0 00.0	-58.0	90.0	0 00.0	-58.2	90.0	0 00.0	-58.5	90.0	0 00.0	-58.7	90.0	0 00.0	-58.9	90.0	0 00.0	-59.1	90.0	0 00.0	-59.3	90.0	0 00.0	-59.4	90.0	0
1	0 58.0	+57.9	89.7	0 58.2	+58.2	89.8	0 58.5	+58.4	89.8	0 58.7	+58.7	89.8	0 58.9	+58.9	89.8	0 59.1	+59.1	89.8	0 59.3	+59.2	89.8	0 59.4	+59.4	89.9	1
2	1 55.9	+58.0	89.5	1 56.4	+58.2	89.5	1 56.9	+58.5	89.5	1 57.4	+58.7	89.6	1 57.8	+58.9	89.6	1 58.2	+59.1	89.7	1 58.5	+59.3	89.7	1 58.8	+59.4	89.7	2
3	2 53.9	+57.9	89.2	2 54.6	+58.3	89.3	2 55.4	+58.4	89.3	2 56.1	+58.6	89.4	2 56.7	+58.9	89.4	2 57.3	+59.0	89.5	2 57.8	+59.2	89.5	2 58.2	+59.5	89.6	3
4	3 51.8	+58.0	89.0	3 52.9	+58.2	89.0	3 53.8	+58.5	89.1	3 54.7	+58.7	89.2	3 55.6	+58.9	89.2	3 56.3	+59.1	89.3	3 57.0	+59.3	89.4	3 57.7	+59.4	89.4	4
5	4 49.8	+57.9	88.7	4 51.1	+58.2	88.8	4 52.3	+58.4	88.9	4 53.4	+58.7	89.0	4 54.5	+58.9	89.0	4 55.4	+59.1	89.1	4 56.3	+59.3	89.2	4 57.1	+59.4	89.3	5
6	5 47.7	+57.9	88.4	5 49.3	+58.2	88.5	5 50.7	+58.5	88.6	5 52.1	+58.7	88.7	5 53.4	+58.8	88.9	5 54.5	+59.1	89.0	5 55.6	+59.2	89.1	5 56.5	+59.4	89.2	6
7	6 45.6	+57.9	88.2	6 47.5	+58.2	88.3	6 49.2	+58.4	88.4	6 50.8	+58.6	88.5	6 52.2	+58.9	88.7	6 53.6	+59.1	88.8	6 54.8	+59.3	88.9	6 55.9	+59.4	89.0	7
8	7 43.5	+58.0	87.9	7 45.7	+58.1	88.1	7 47.6	+58.4	88.2	7 49.4	+58.7	88.3	7 51.1	+58.9	88.5	7 52.7	+59.0	88.6	7 54.1	+59.2	88.7	7 55.3	+59.4	88.9	8
9	8 41.5	+57.9	87.7	8 43.8	+58.2	87.8	8 46.0	+58.5	88.0	8 48.1	+58.7	88.1	8 50.0	+58.9	88.3	8 51.7	+59.1	88.4	8 53.3	+59.2	88.6	8 54.7	+59.4	88.7	9
10	9 39.4	+57.8	87.4	9 42.0	+58.2	87.6	9 44.5	+58.4	87.7	9 46.8	+58.6	87.9	9 48.9	+58.8	88.1	9 50.8	+59.1	88.2	9 52.5	+59.3	88.4	9 54.1	+59.4	88.6	10
11	10 37.2	+57.9	87.1	10 40.2	+58.1	87.3	10 42.9	+58.4	87.5	10 45.4	+58.6	87.7	10 47.7	+58.9	87.9	10 49.9	+59.0	88.1	10 51.8	+59.2	88.3	10 53.5	+59.4	88.5	11
12	11 35.1	+57.9	86.9	11 38.3	+58.1	87.1	11 41.3	+58.4	87.3	11 44.0	+58.7	87.5	11 46.6	+58.8	87.7	11 48.9	+59.0	87.9	11 51.0	+59.2	88.1	11 52.9	+59.4	88.3	12
13	12 33.0	+57.8	86.6	12 36.4	+58.2	86.8	12 39.7	+58.3	87.0	12 42.7	+58.6	87.3	12 45.4	+58.9	87.5	12 47.9	+59.1	87.7	12 50.2	+59.3	87.9	12 52.3	+59.4	88.2	13
14	13 30.8	+57.9	86.3	13 34.6	+58.1	86.5	13 38.0	+58.4	86.8	13 41.3	+58.6	87.0	13 44.3	+58.8	87.3	13 47.0	+59.0	87.5	13 49.5	+59.2	87.8	13 51.7	+59.3	88.0	14
15	14 28.7	+57.8	86.0	14 32.7	+58.1	86.3	14 36.4	+58.4	86.6	14 39.9	+58.6	86.8	14 43.1	+58.8	87.1	14 46.0	+59.0	87.3	14 48.7	+59.2	87.6	14 51.0	+59.4	87.9	15
16	15 26.5	+57.7	85.8	15 30.8	+58.0	86.0	15 34.8	+58.3	86.3	15 38.5	+58.6	86.6	15 41.9	+58.8	86.9	15 45.0	+59.0	87.1	15 47.9	+59.2	87.4	15 50.4	+59.4	87.7	16
17	16 24.2	+57.8	85.5	16 28.8	+58.1	85.8	16 33.1	+58.3	86.1	16 37.1	+58.5	86.4	16 40.7	+58.8	86.7	16 44.0	+59.0	87.0	16 47.1	+59.2	87.3	16 49.8	+59.3	87.6	17
18	17 22.0	+57.7	85.2	17 26.9	+58.0	85.5	17 31.4	+58.3	85.8	17 35.6	+58.6	86.1	17 39.5	+58.8	86.5	17 43.0	+59.0	86.8	17 46.3	+59.1	87.1	17 49.1	+59.4	87.4	18
19	18 19.7	+57.8	84.9	18 24.9	+58.0	85.2	18 29.7	+58.3	85.6	18 34.2	+58.5	85.9	18 38.3	+58.7	86.2	18 42.0	+59.0	86.6	18 45.4	+59.2	86.9	18 48.5	+59.3	87.3	19
20	19 17.5	+57.6	84.6	19 22.9	+58.0	85.0	19 28.0	+58.2	85.3	19 32.7	+58.5	85.7	19 37.0	+58.8	86.0	19 41.0	+59.0	86.4	19 44.6	+59.2	86.7	19 47.8	+59.4	87.1	20
21	20 15.1	+57.7	84.3	20 20.9	+57.9	84.7	20 26.2	+58.3	85.1	20 31.2	+58.5	85.4	20 35.8	+58.7	85.8	20 40.0	+58.9	86.2	20 43.8	+59.1	86.6	20 47.2	+59.3	86.9	21
22	21 12.8	+57.6	84.0	21 18.8	+58.0	84.4	21 24.5	+58.2	84.8	21 29.7	+58.5	85.2	21 34.5	+58.7	85.6	21 38.9	+59.0	86.0	21 42.9	+59.2	86.4	21 46.5	+59.3	86.8	22
23	22 10.4	+57.6	83.7	22 16.8	+57.9	84.1	22 22.7	+58.2	84.5	22 28.2	+58.4	85.0	22 33.2	+58.7	85.4	22 37.9	+58.9	85.8	22 42.1	+59.1	86.2	22 45.8	+59.3	86.6	23
24	23 08.0	+57.6	83.4	23 14.7	+57.8	83.9	23 20.9	+58.1	84.3	23 26.6	+58.5	84.7	23 31.9	+58.7	85.1	23 36.8	+58.9	85.6	23 41.2	+59.1	86.0	23 45.1	+59.3	86.5	24
25	24 05.6	+57.5	83.1	24 12.5	+57.9	83.6	24 19.0	+58.2	84.0	24 25.1	+58.4	84.5	24 30.6	+58.7	84.9	24 35.7	+58.9	85.4	24 40.3	+59.1	85.8	24 44.4	+59.3	86.3	25
26	25 03.1	+57.5	82.8	25 10.4	+57.8	83.3	25 17.2	+58.1	83.7	25 23.5	+58.3	84.2	25 29.3	+58.6	84.7	25 34.6	+58.8	85.2	25 39.4	+59.1	85.6	25 43.7	+59.3	86.1	26
27	26 00.6	+57.4	82.5	26 08.2	+57.7	83.0	26 15.3	+58.0	83.5	26 21.8	+58.4	84.0	26 27.9	+58.6	84.4	26 33.4	+58.9	84.9	26 38.5	+59.0	85.4	26 43.0	+59.2	85.9	27
28	26 58.0	+57.4	82.2	27 05.9	+57.7	82.7	27 13.3	+58.0	83.2	27 20.2	+58.3	83.7	27 26.5	+58.6	84.2	27 32.3	+58.8	84.7	27 37.5	+59.1	85.2	27 42.2	+59.3	85.8	28
29	27 55.4	+57.3	81.8	28 03.6	+57.7	82.4	28 11.3	+58.0	82.9	28 18.5	+58.3	83.4	28 25.1	+58.5	84.0	28 31.1	+58.8	84.5	28 36.6	+59.0	85.0	28 41.5	+59.2	85.6	29
30	28 52.7	+57.3	81.5	29 01.3	+57.7	82.0	29 09.3	+58.0	82.6	29 16.8	+58.2	83.2	29 23.6	+58.6	83.7	29 29.9	+58.8	84.3	29 35.6	+59.0	84.8	29 40.7	+59.2	85.4	30
31	29 50.0	+57.3	81.2	29 59.0	+57.6	81.7	30 07.3	+57.9	82.3	30 15.0	+58.3	82.9	30 22.2	+58.5	83.5	30 28.7	+58.8	84.0	30 34.6	+59.0	84.6	30 39.9	+59.2	85.2	31
32	30 47.3	+57.2	80.8	30 56.6	+57.5	81.4	31 05.2	+57.9	82.0	31 13.3	+58.1	82.6	31 20.7	+58.4	83.2	31 27.5	+58.7	83.8	31 33.6	+59.0	84.4	31 39.1	+59.2	85.0	32
33	31 44.5	+57.1	80.5	31 54.1	+57.5	81.1	32 03.1	+57.8	81.7	32 11.4	+58.2	82.3	32 19.1	+58.5	82.9	32 26.2	+58.7	83.6	32 32.6	+58.9	84.2	32 38.3	+59.2	84.8	33
34	32 41.6	+57.0	80.1	32 51.6	+57.4	80.7	33 00.9	+57.8	81.4	33 09.6	+58.1	82.0	33 17.6	+58.4	82.7	33 24.9	+58.7	83.3	33 31.5	+59.0	84.0	33 37.5	+59.1	84.6	34
35	33 38.6	+57.0	79.7	33 49.0	+57.4	80.4	34 58.7	+57.7	81.0	34 67.7	+58.0	81.7	34 16.0	+58.3	82.4	34 23.6	+58.6	83.1	34 30.5	+58.8	83.7	34 36.6	+59.2	84.4	35
36	34 35.6	+57.0	79.4	34 46.4	+57.3	80.0	35 54.6	+57.7	80.7	35 05.7	+58.0	81.4	35 14.3	+58.3	82.1	35 22.2	+58.6	82.8	35 29.3	+58.9	83.5	35 35.8	+59.1	84.2	36
37	35 32.6	+56.8	79.0	35 43.7	+57.2	79.7	35 54.1	+57.6	80.4	36 03.7	+58.0	81.1	36 12.6	+58.3	81.8	36 20.8	+58.6	82.5	36 28.2	+58.9	83.3	36 34.9	+59.0	84.0	37
38	36 29.4	+56.8	78.6	36 40.9	+57.2	79.3</																			